

Globalization – Agricultural Economics and Public Health Concerns

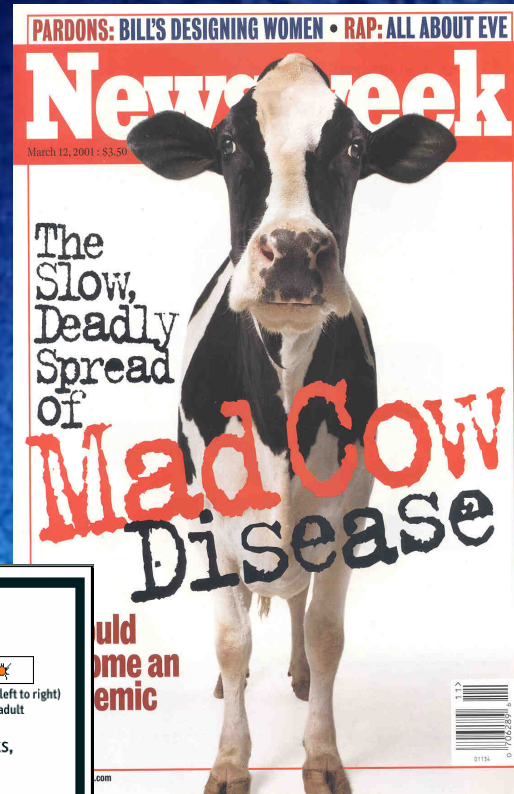


Emerging Diseases – 3 WAVES

- Brand new and spectacular
- Bioterror and new geographic areas
- Trade-generated, chronic



Emerging Diseases



LYME DISEASE ALERT

DO A THOROUGH BODY CHECK FOR TICKS AFTER BEING OUTDOORS.

How To Remove A Tick



- Using tweezers, grasp tick near the mouth parts, as close to skin as possible.
- Pull tick in a steady, upward motion away from skin.
- DO NOT use kerosene, matches, or petroleum jelly to remove tick.
- Disinfect site with soap and water, rubbing alcohol or hydrogen peroxide.
- Record date and location of tick bite. If rash or flu-like symptoms appear contact your health care provider immediately.

DISEASE RISK IS REDUCED IF TICK IS REMOVED WITHIN 36 HOURS.

New York State Department of Health

Deer tick size (left to right)
larva, nymph, adult



Brand new and spectacular

Emerging Diseases



"Buddy" before

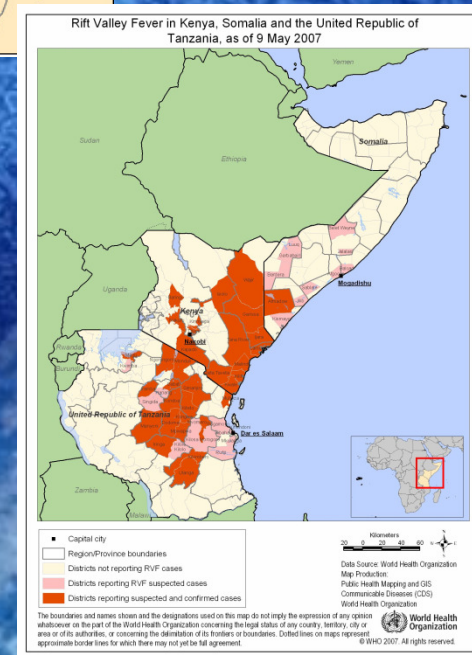
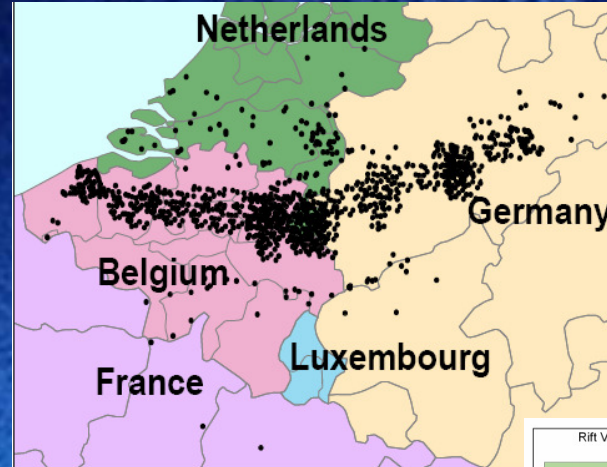
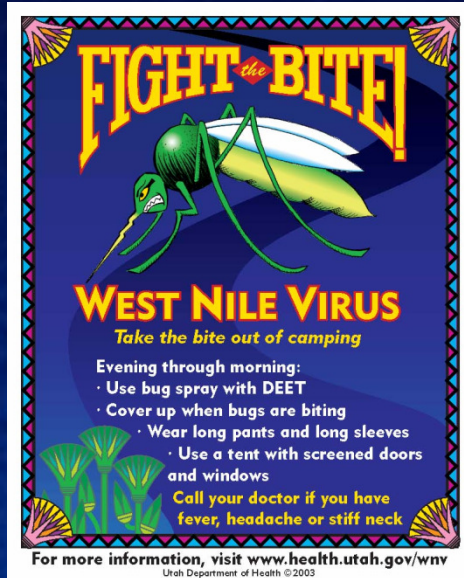


"Buddy" after

Ask your vet about **BOWOTOX** for your pet!
BOTOX: Not just for humans anymore.

Bioterror, New geographic areas

Emerging Diseases



Bioterror, New geographic areas

Emerging Diseases – 3 WAVES

- Brand new and spectacular
- Bioterror and new geographic areas
- **Trade-generated**







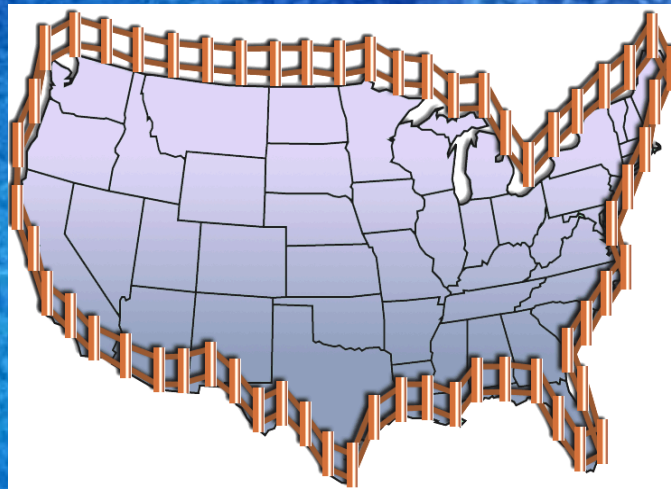
The World Is Flat

A BRIEF HISTORY OF
THE TWENTY-FIRST CENTURY

Thomas L. Friedman

Globalization

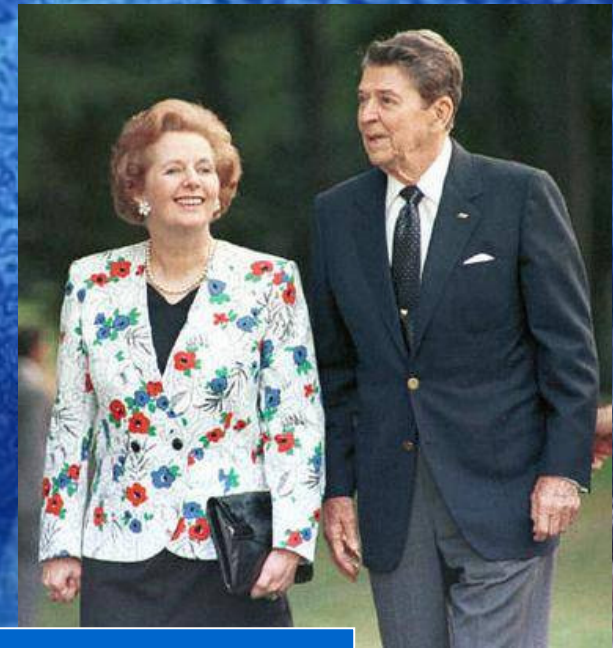
“an ongoing process characterized by the integration of markets, nations, and technology to create an interdependent, worldwide economy.”



Seeds of Globalization



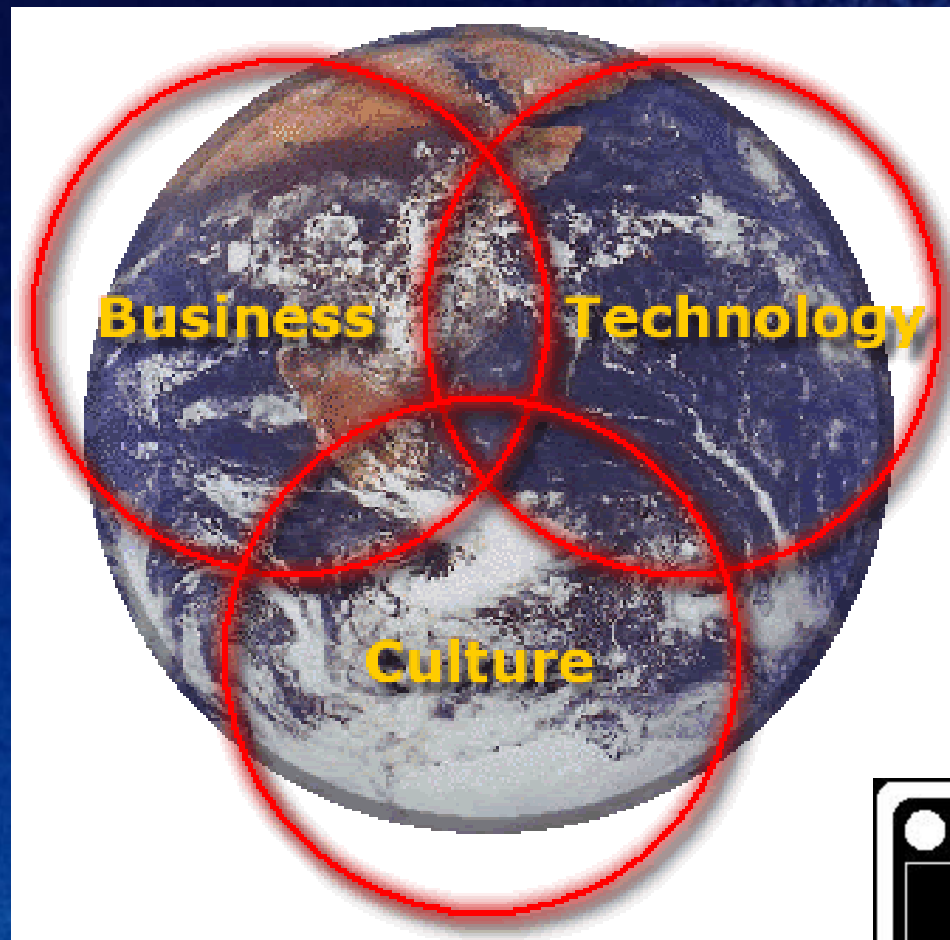
3 critical "inventions"



+ 2 key leaders

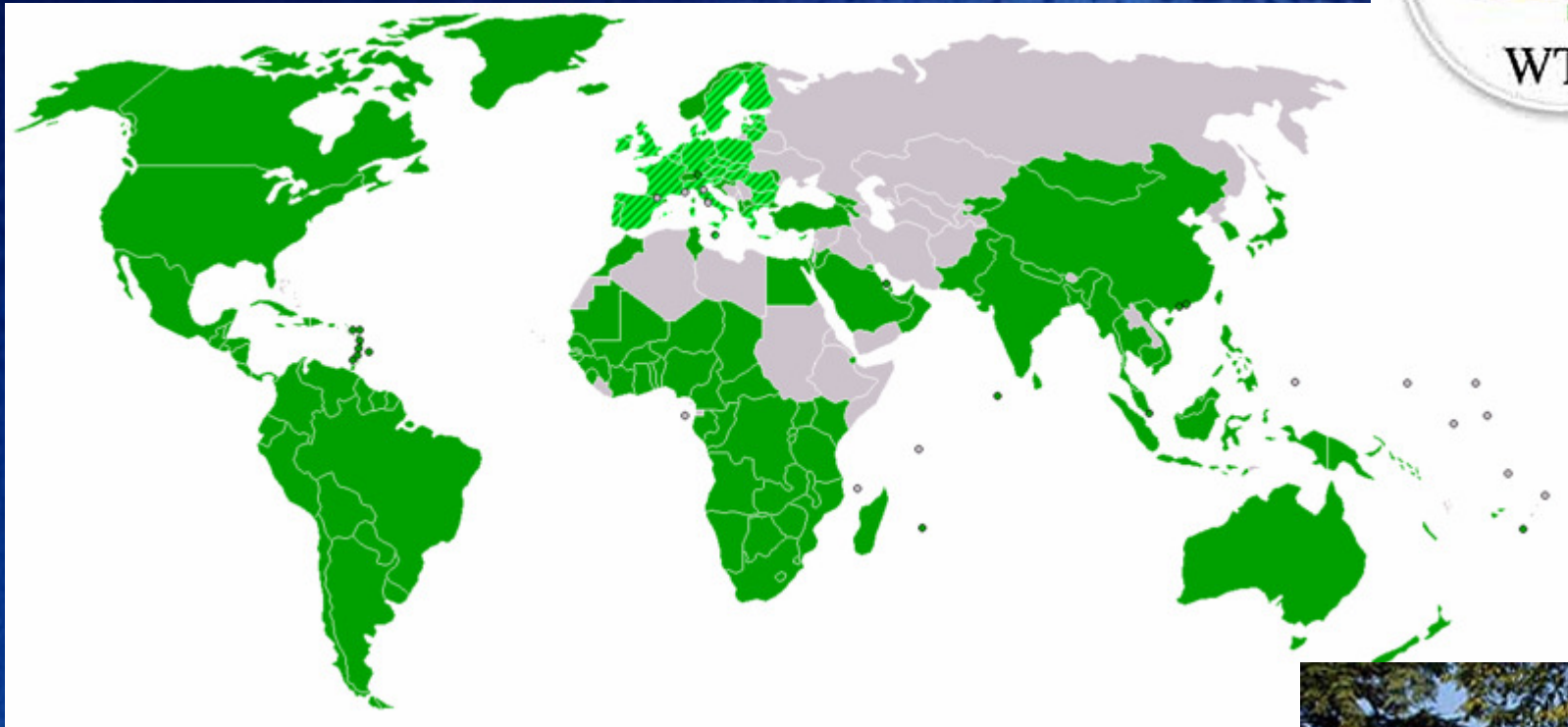
51 of the world's 100 largest economies are corporations, not countries.







World Trade Organization



151 members



GATT

- Began in 1947, with 23 members
- 8 ROUNDS of negotiation, ending with Uruguay Round in 1994
- Biggest benefit – Most Favored Nation trading status
- Biggest problem – developing countries couldn't penetrate the dispute settlement mechanisms

“significant de-politicization of trade”



How to know if you're mom's favorite.....

**The
Economist**

JULY 29TH-AUGUST 4TH 2006

www.economist.com

Israel stuck in Lebanon

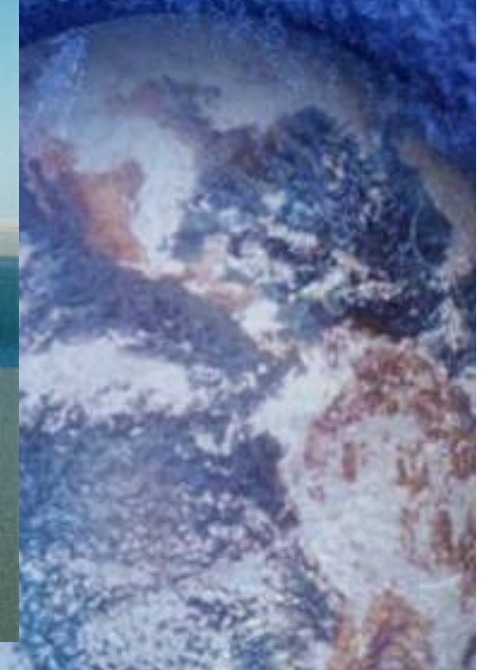
The PC at 25

Lessons from America's welfare reform

Viva, Zapatero

The world's most profitable bank

The future of globalisation



MANEY

Chicago Tribune
11/11/2000

GLOBAL WARMING

TURN
THIS THING
AROUND!



THAT'S NOT
THE WAY
IT WORKS.

Complex interdependence





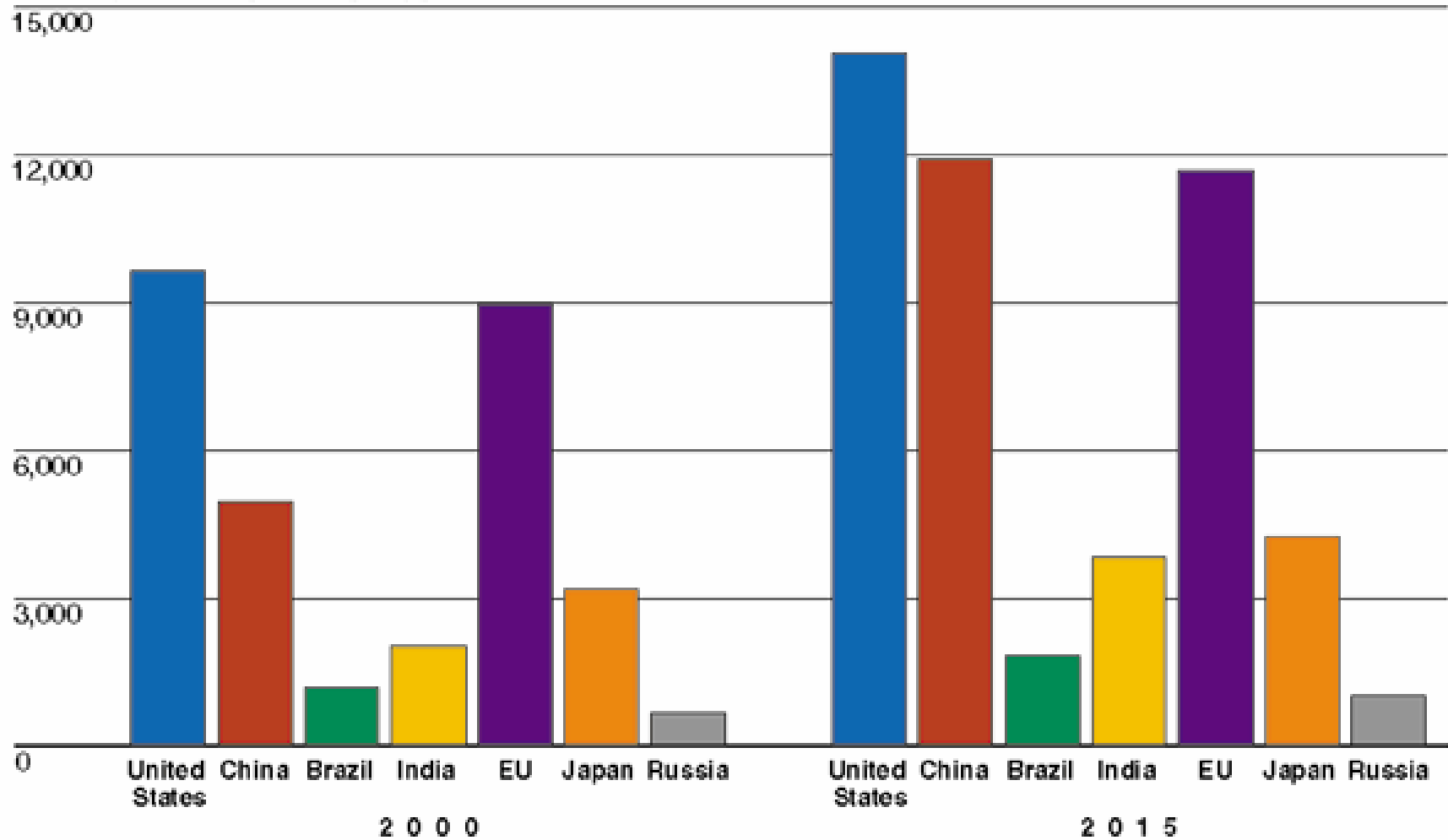
World's
GDP =
US\$44T

World
trade
accounts
for ~50%

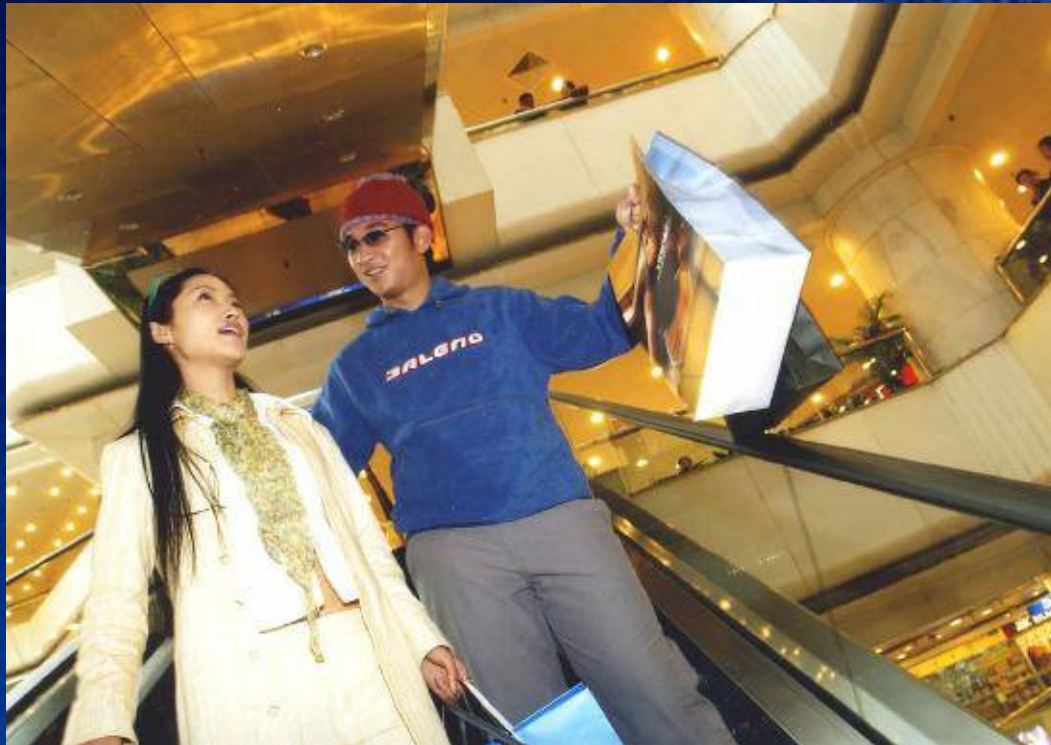
Growth 3-
6% per
year

GDP by Major Countries and the EU: 2000 and 2015

Billions of 1998 US\$ (purchase parity power data)



Source: CIA's Long-Term Growth Model.

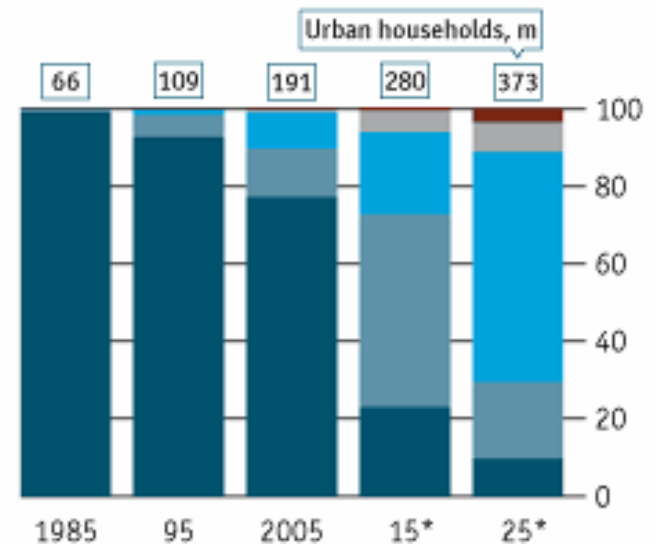


Middle-class bulge

1

Chinese urban households by annual income
% of total

- Global affluent (>200,000 yuan)
- Mass affluent (100,001-200,000 yuan)
- Upper-middle class (40,001-100,000 yuan)
- Lower-middle class (25,001-40,000 yuan)
- Poor (≤25,000 yuan)

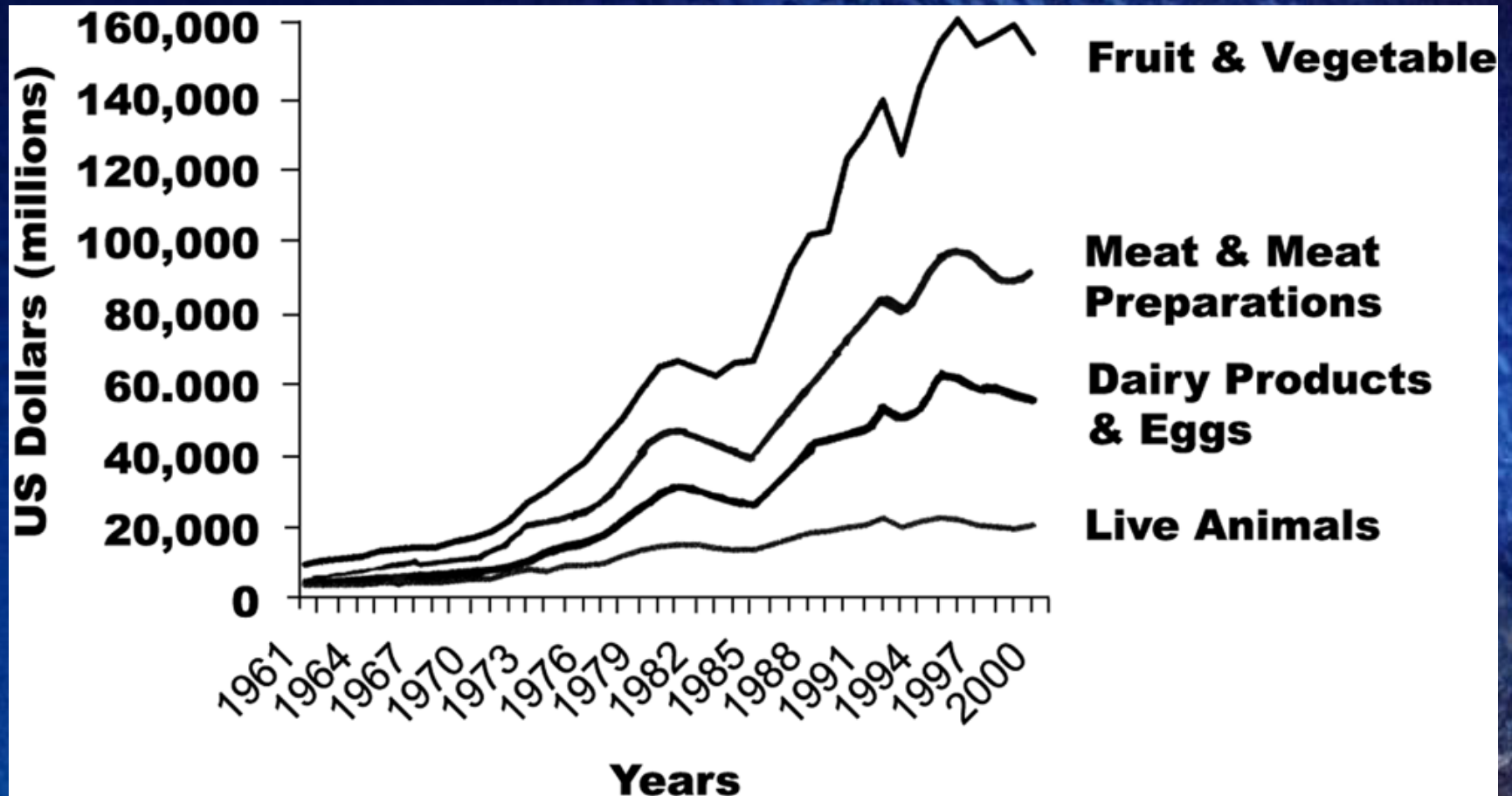


Source: McKinsey

*Forecasts



Economic opportunities in the flat world

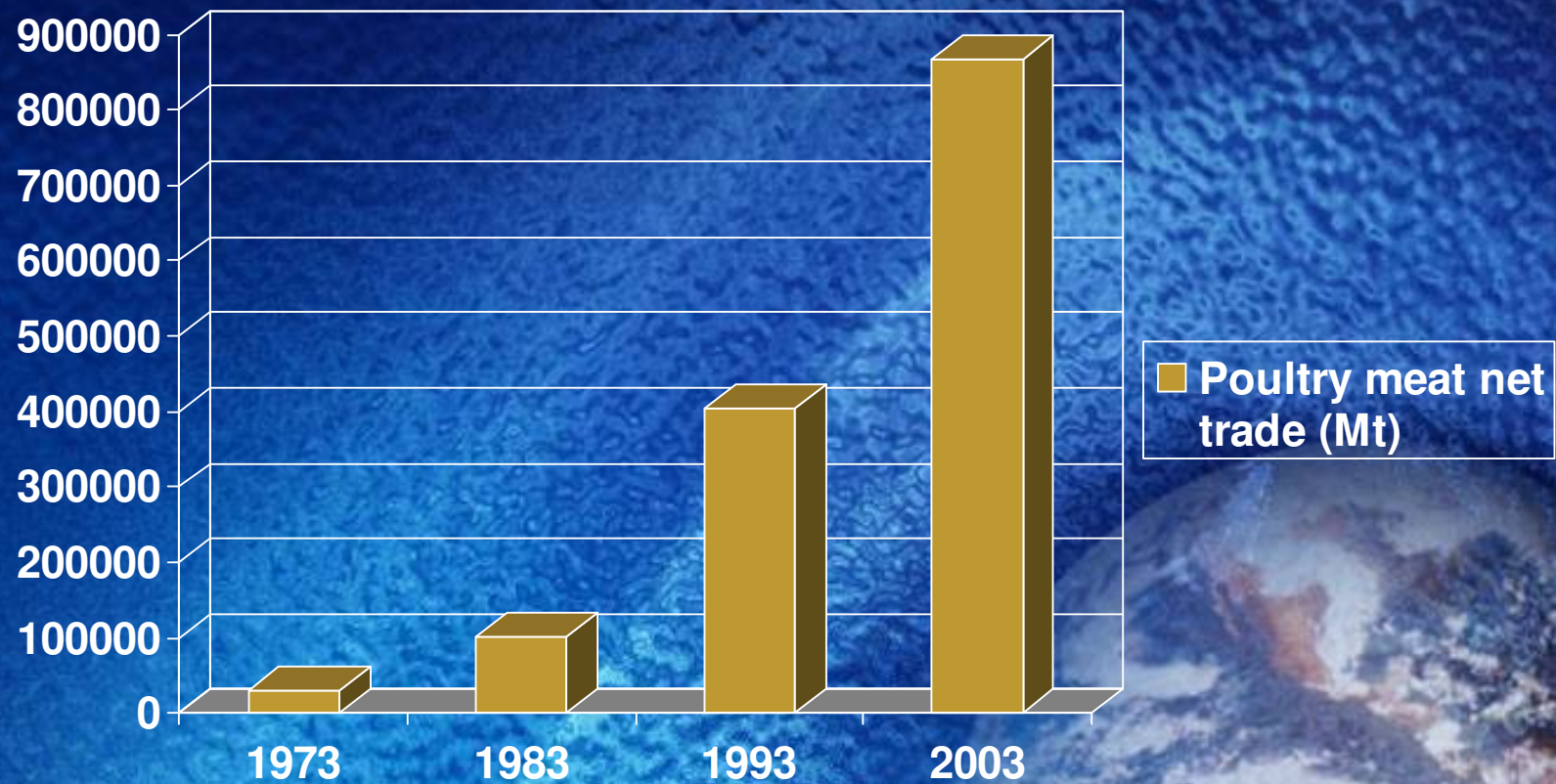


Livestock and livestock products account for 1/6 of all international agricultural trade

Moved from one country to another:

- 37M head of livestock
- 818M chickens, ducks, or turkeys





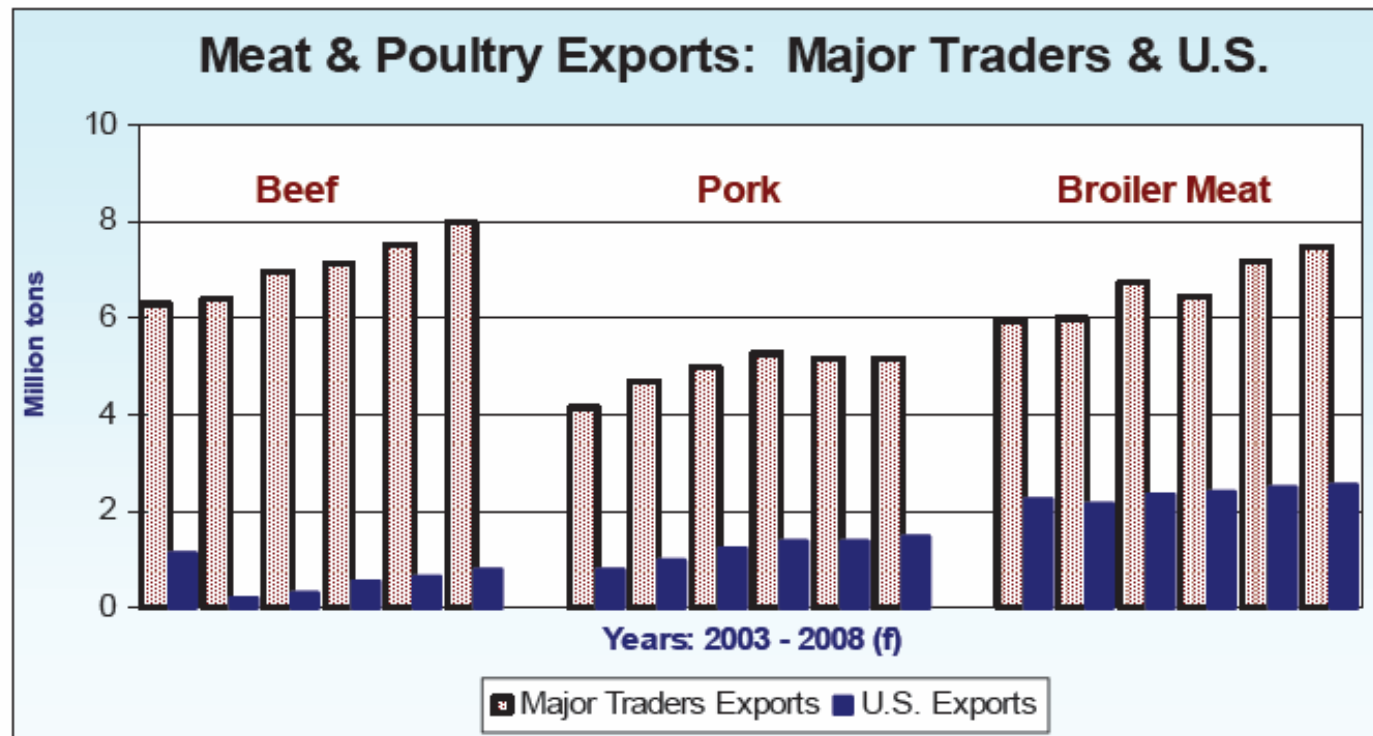
Global poultry meat exports

2008 Forecast:

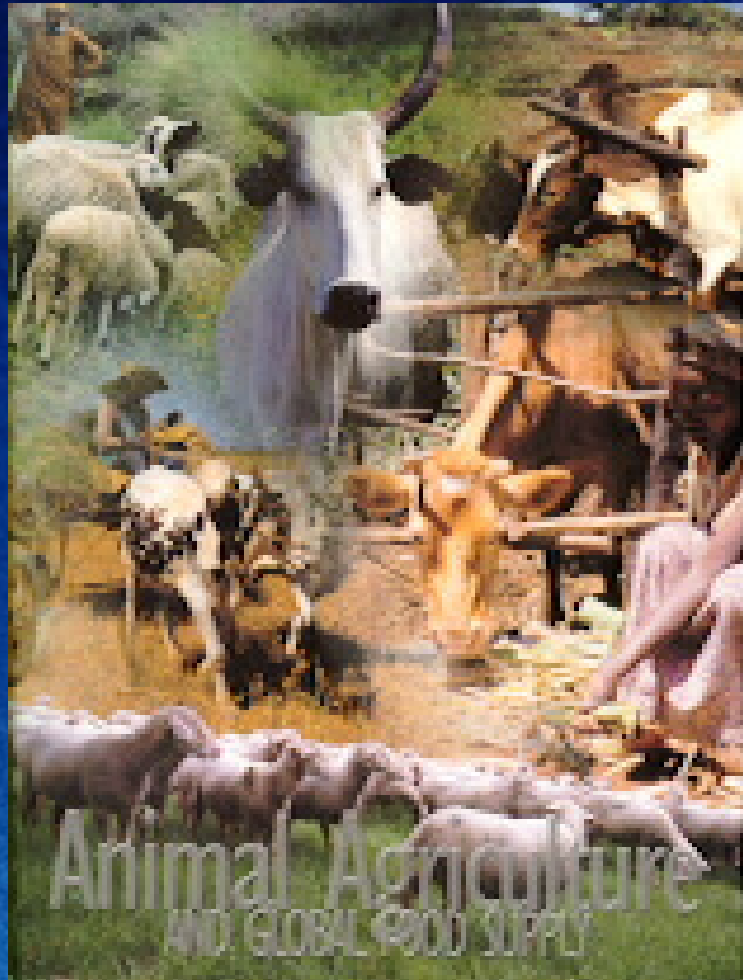
Healthy Climb for World Beef & Broiler Meat Exports;

Pork Exports Stagnant

Driven by global economic growth, beef and poultry exports are expected to expand. Pork exports by major traders are expected to decline slightly as production is forecast lower in Canada and the EU.



Predictions – Global Livestock Production



Food, Agriculture, and the Environment Discussion Paper 28

Livestock to 2020 The Next Food Revolution

*Christopher Delgado
Mark Rosegrant
Henning Steinfeld
Simeon Ehui
Claude Courbois*



International Food Policy Research Institute
2033 K Street, N.W., Washington, D.C. 20006-1002 U.S.A.



Food and Agriculture Organization of the United Nations
Viale delle Terme di Caracalla, 00100 Rome, Italy



International Livestock Research Institute
P.O. Box 30709, Nairobi, Kenya

May 1999

DEMANDS FOR ANIMAL- BASED PROTEIN

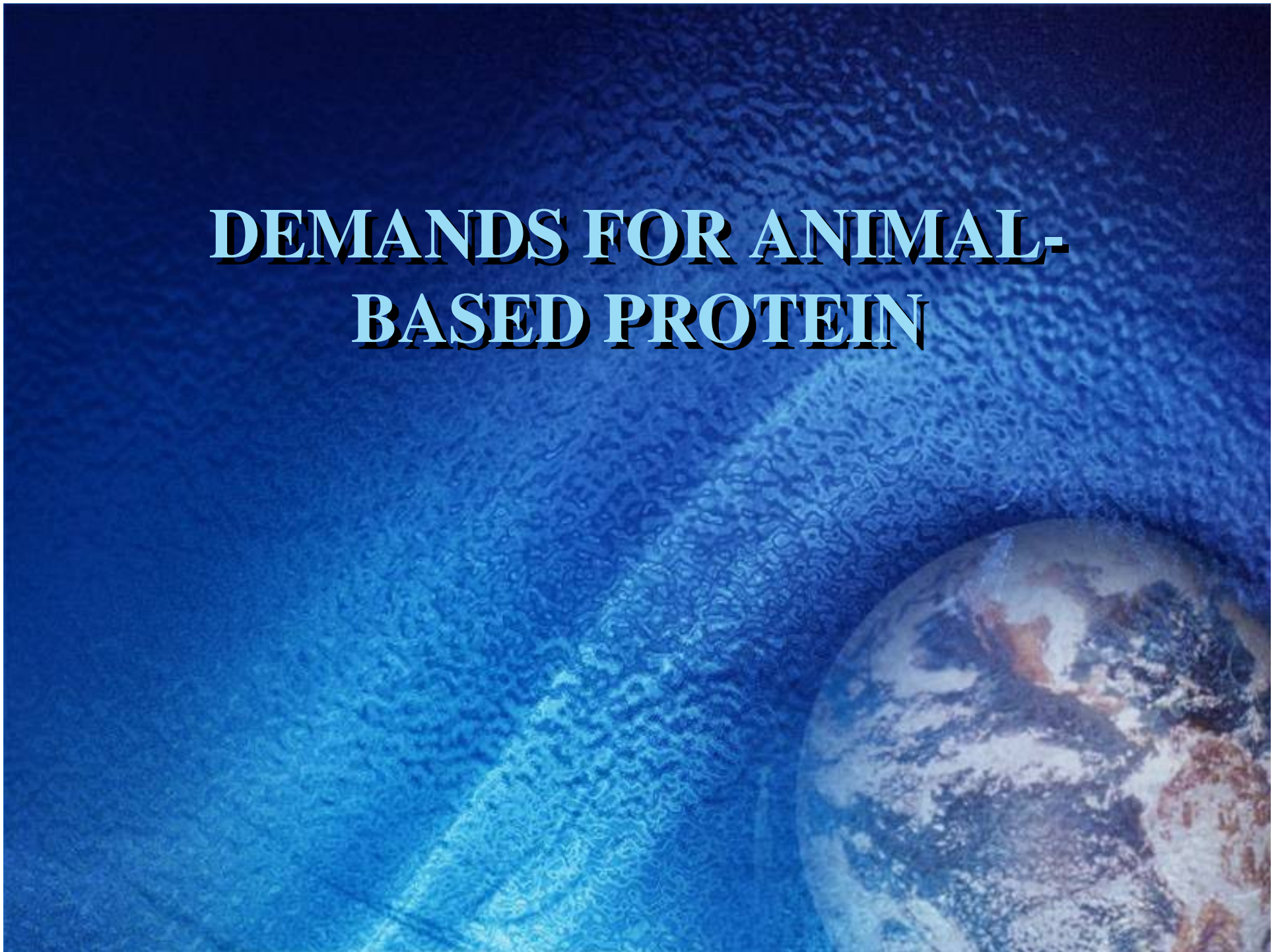
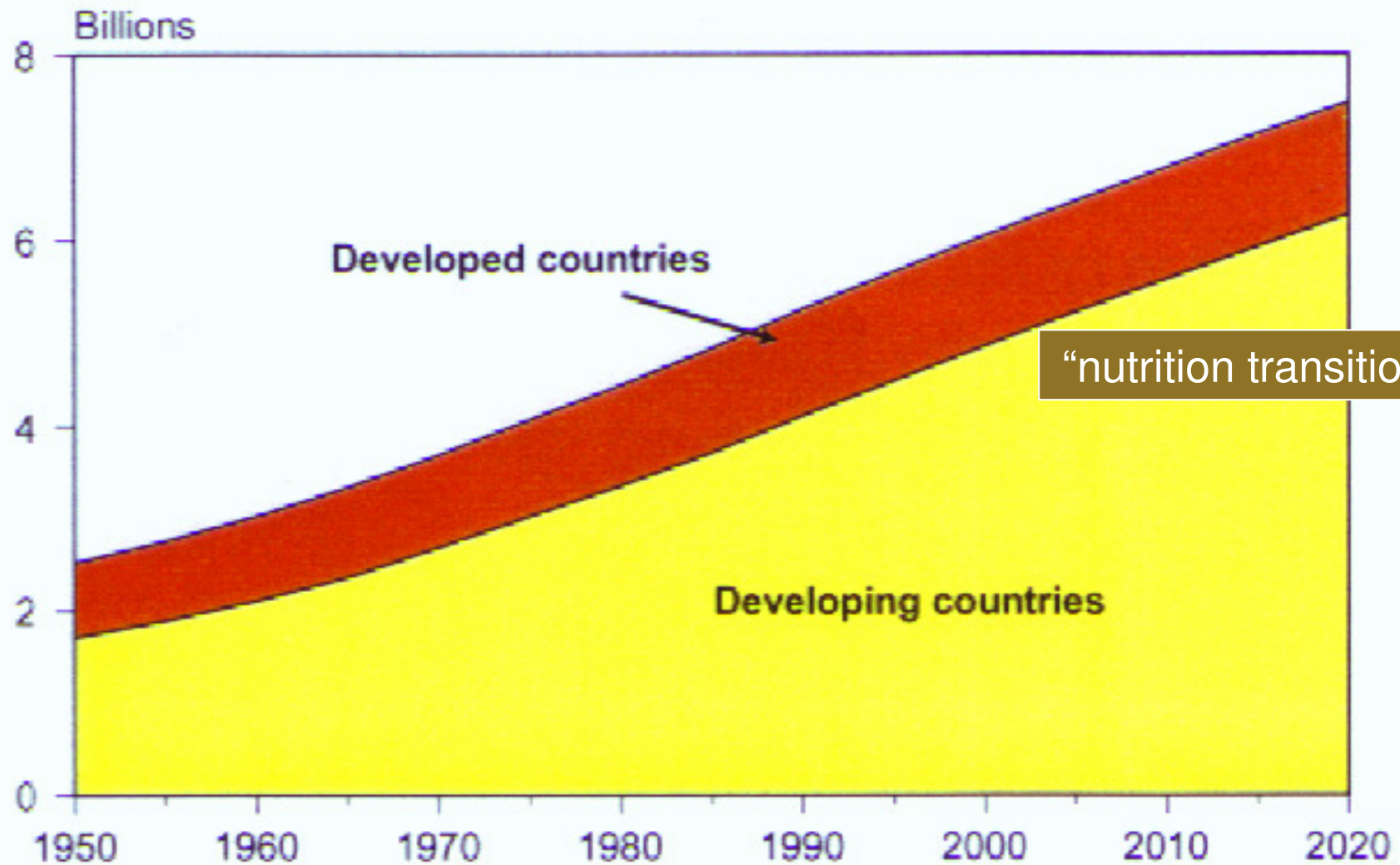


Figure 4—World population, 1950–2020



Source: United Nations (1999).

Note: Medium-variant projections for 2000-2020.

Livestock Revolution

Table 1.2. Past and projected meat and milk consumption in major regions of the world

<i>Region</i>	<i>Meat</i>			<i>Milk</i>		
	<i>1983</i>	<i>1997</i>	<i>2020</i>	<i>1983</i>	<i>1997</i>	<i>2020</i>
	<i>(kg person⁻¹ y⁻¹)</i>					
China	16	43	73	3	8	16
Other East Asia	11	18	54	10	12	29
India	4	4	8	46	62	105
Other South Asia	6	9	13	47	63	82
Latin America	40	54	70	93	112	130
WANA	20	21	26	86	73	92
SSA	10	10	12	32	30	37
World	30	36	45	76	77	89

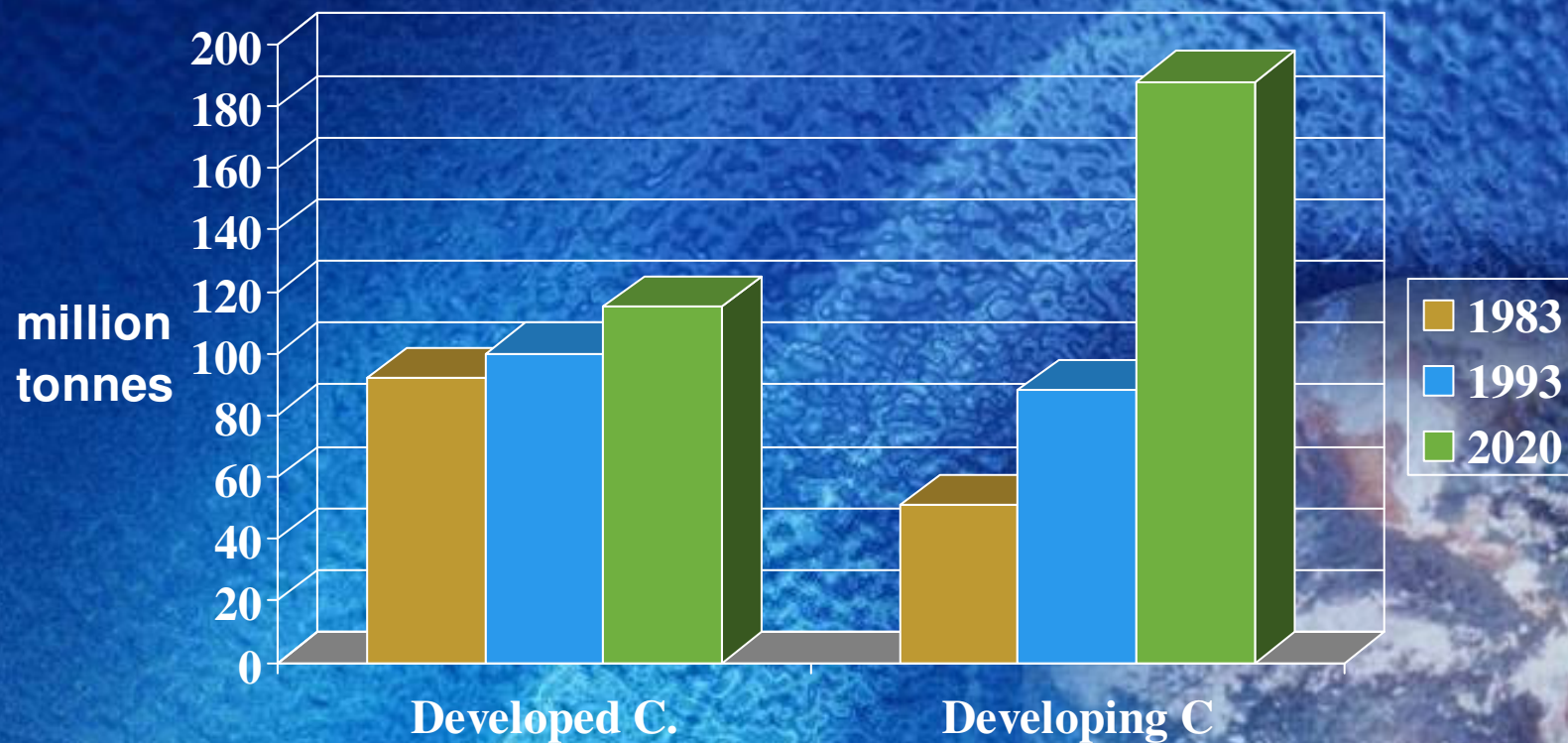
Note. Figures are given in kilograms per person per year

Source: Delgado and others 2001; Delgado and others 2003b.

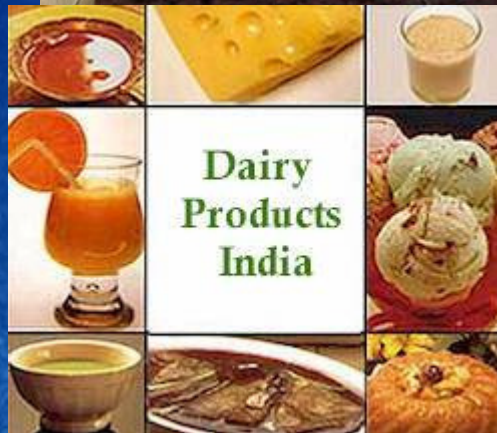
**WHERE WILL THE FOOD
COME FROM?**



Past and Projected Growth in Meat Production



Livestock Revolution







AFP



ISSN 1020-5480

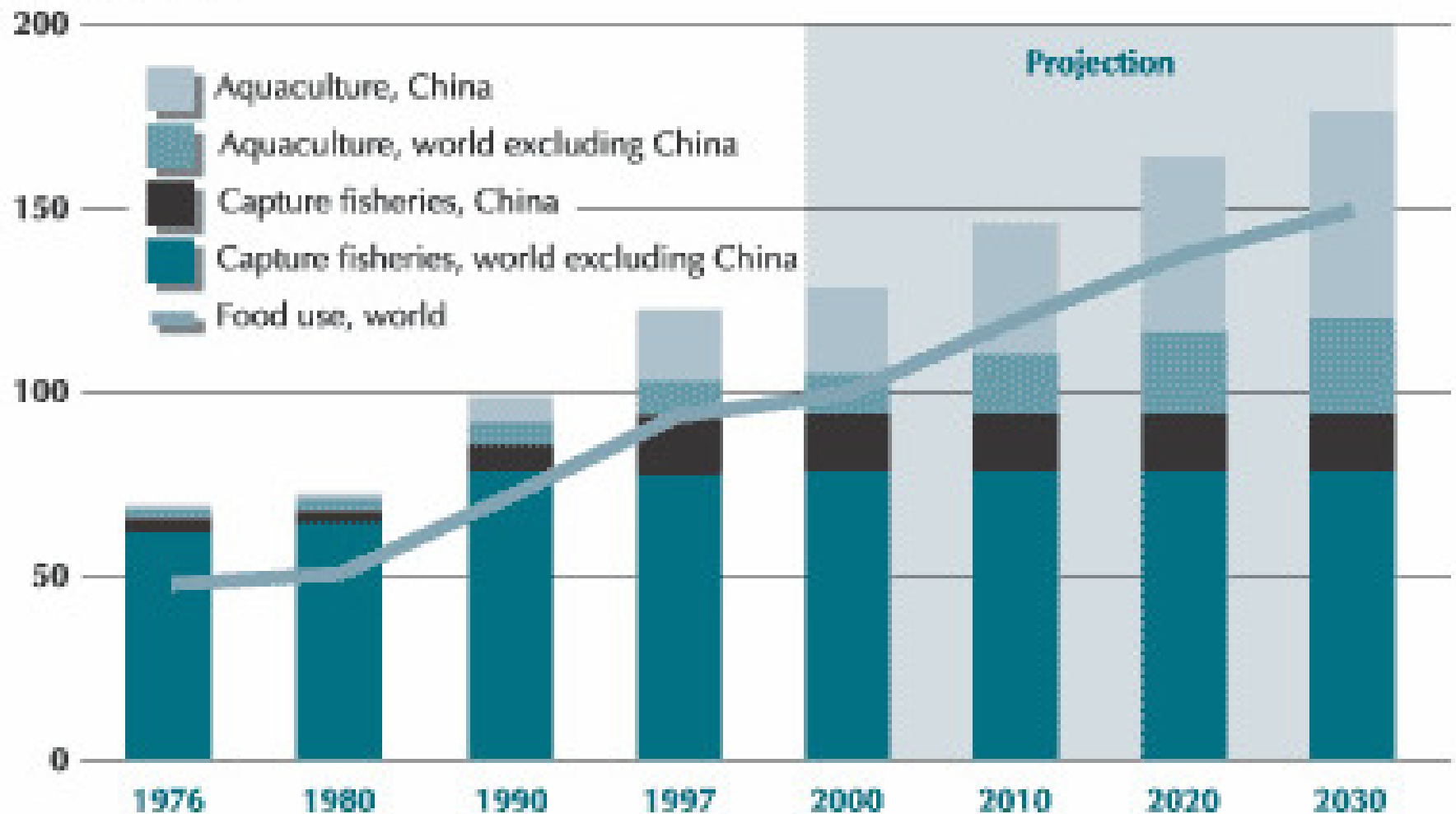


**THE STATE OF
WORLD FISHERIES
AND AQUACULTURE
2006**



World fish production and food use consumption 1976–2030

Million tonnes



World capture and aquaculture production

Million tonnes

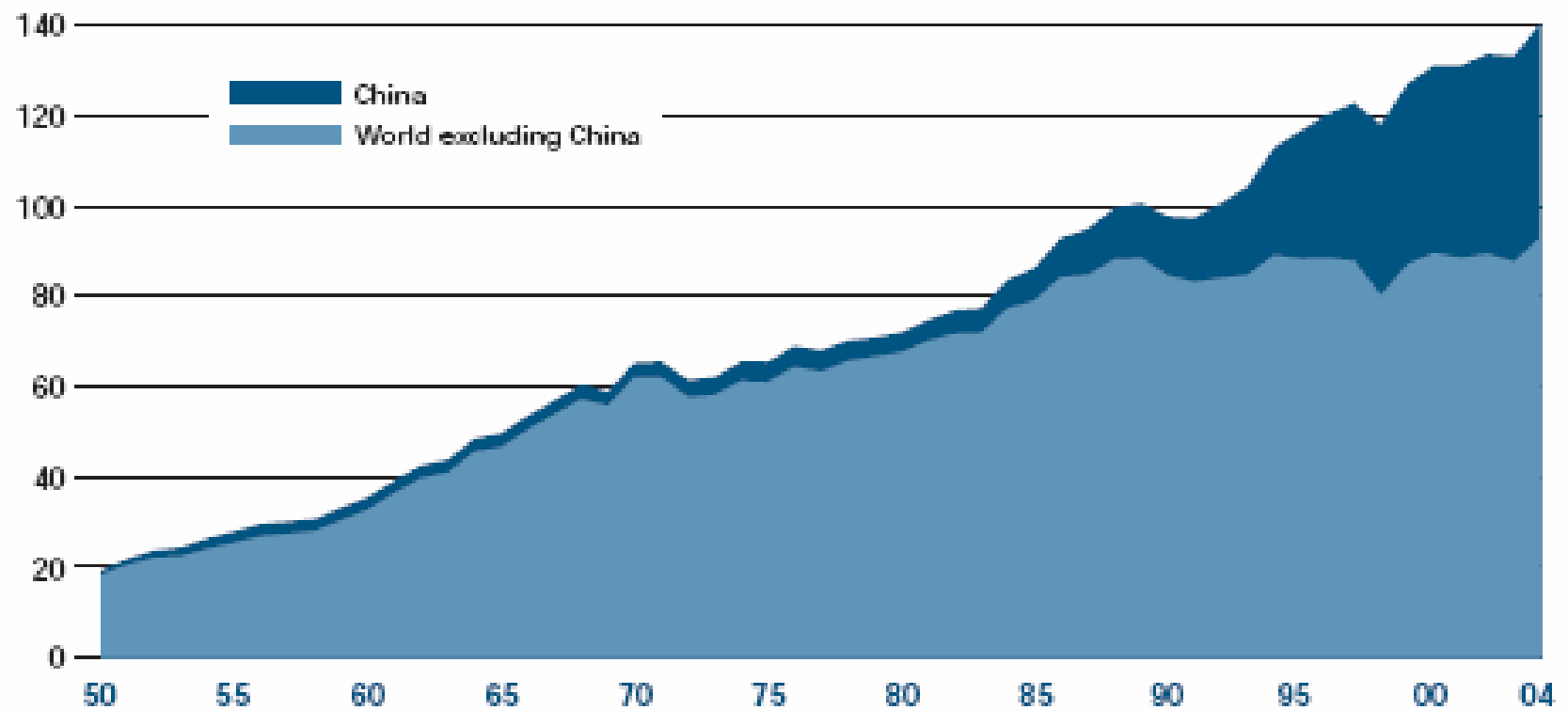
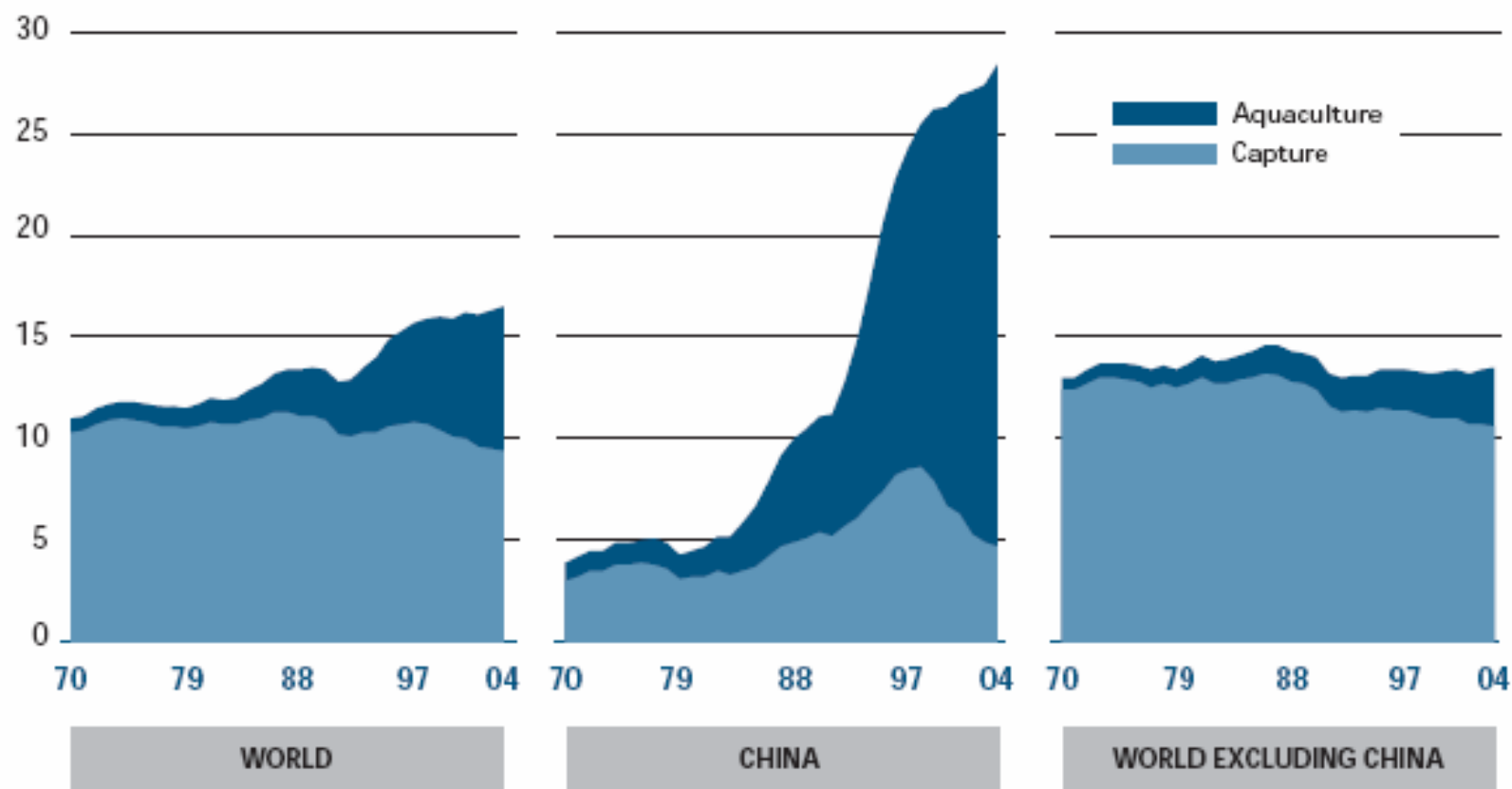


Figure 25

Relative contribution of aquaculture and capture fisheries to food fish consumption

Fishery food supply (kg/capita)



HOW WILL IT BE PRODUCED?

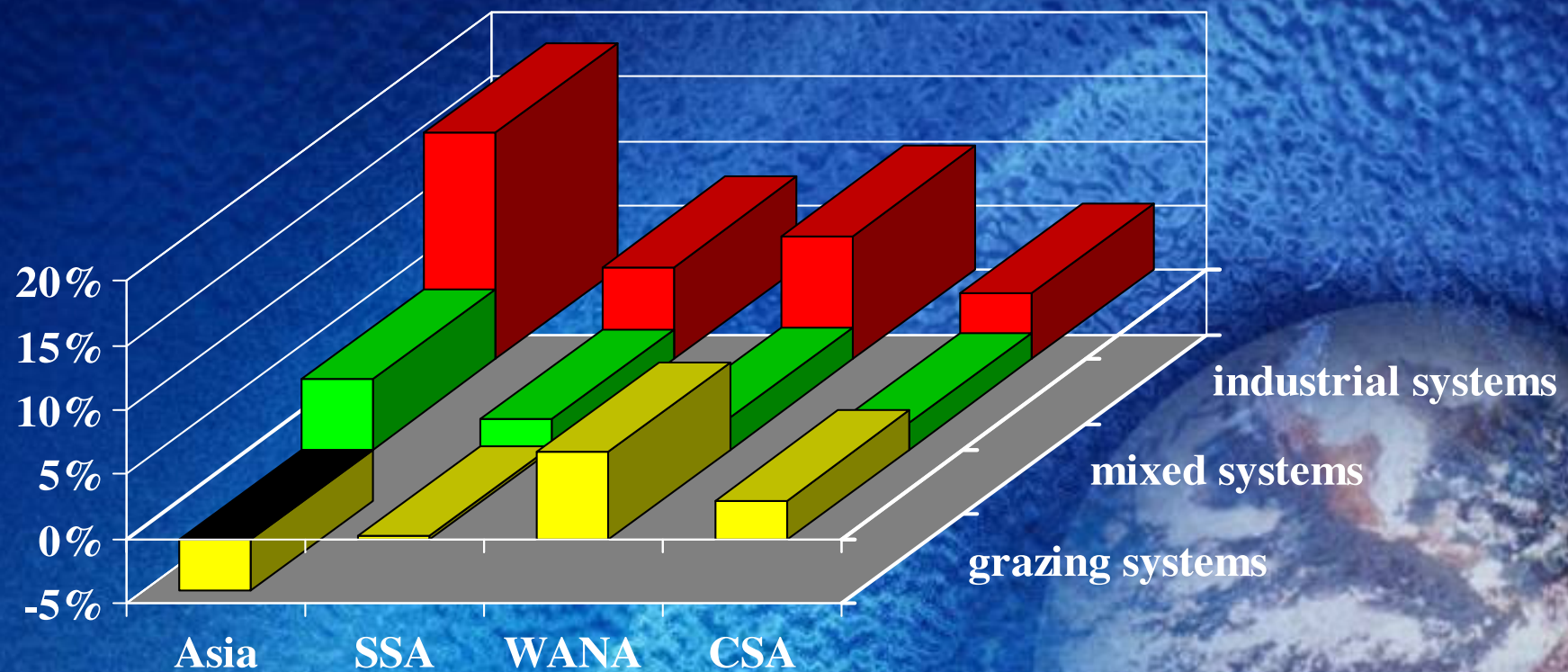


Structural changes

- Vertical integration
- Contract farming
- Concentration in input and processing sector
- Spatial concentrations



Annual Growth Rates of Different Production Systems in Developing Countries



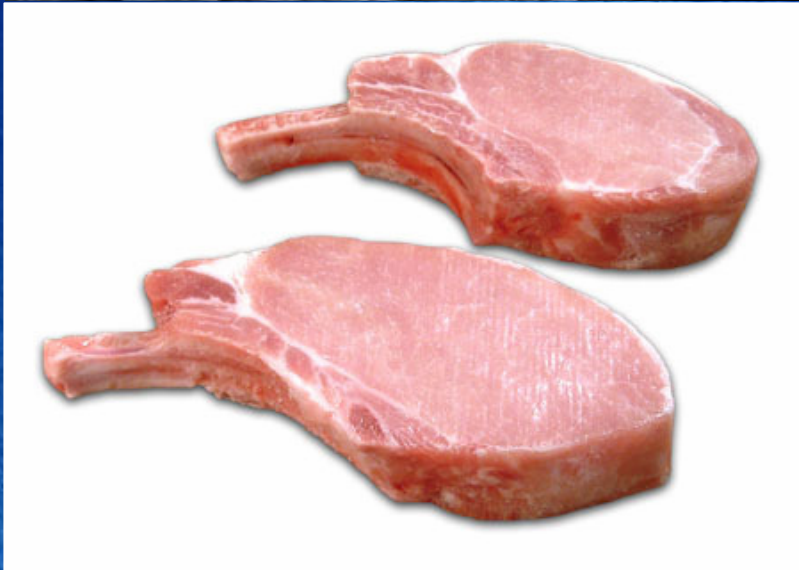
Livestock Revolution



WHO WILL BENEFIT?



Livestock Revolution **BENEFICIARIES**



- Consumers
- Large scale operators, processors, traders
- Generates employment

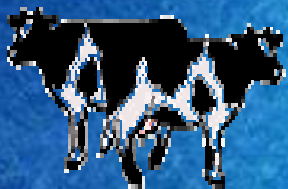


Economics



- 90M beef cattle
- 10M dairy cattle
- 10M sheep
- 60M hogs
- 8B poultry

Americans pay lowest per capita price for food of any country in the world – 11.5¢ per dollar earned



Economics



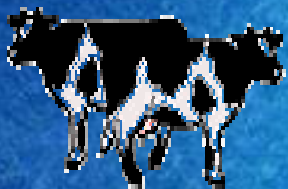
- 90M beef cattle
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Value based on exports

Most commodities – 20% are exported

= 13% of GDP, 17% of all employment

= \$140 billion in exports, 860,000 jobs



US Benefits

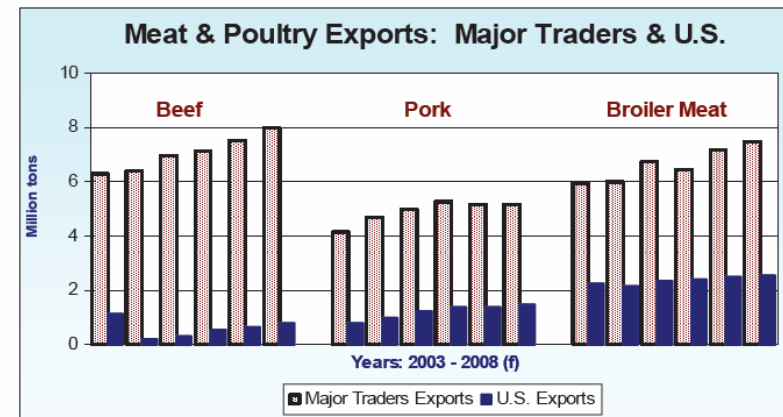
- High quality products
- Disease free status
- Genetic value

2008 Forecast:

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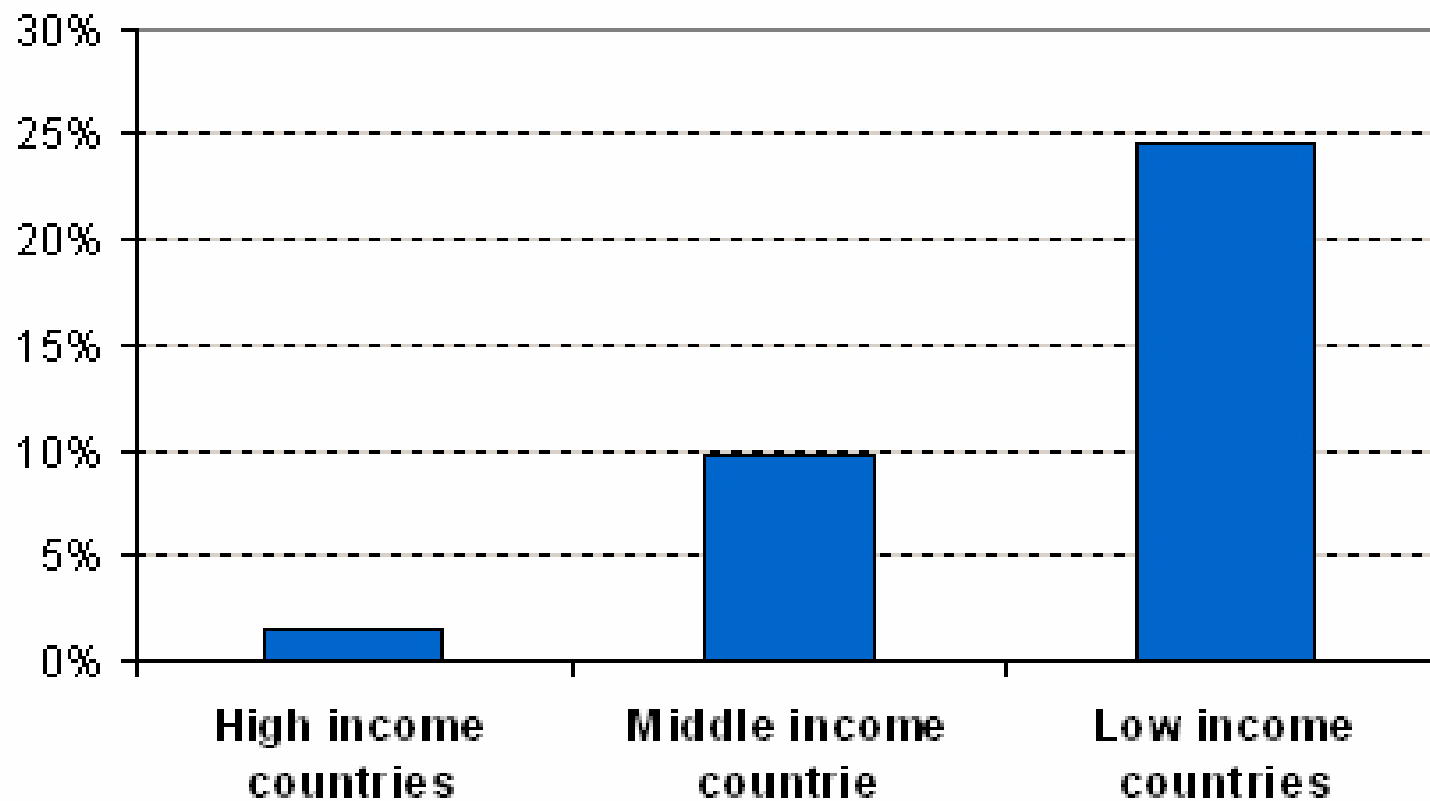
Developing Country Benefits

- ALREADY well invested in agriculture
- ~50% engaged in agriculture
- “Comparative advantage” - land, labor, capital
- Foreign Direct Investment



Figure 1: Economic Dependence on Agriculture

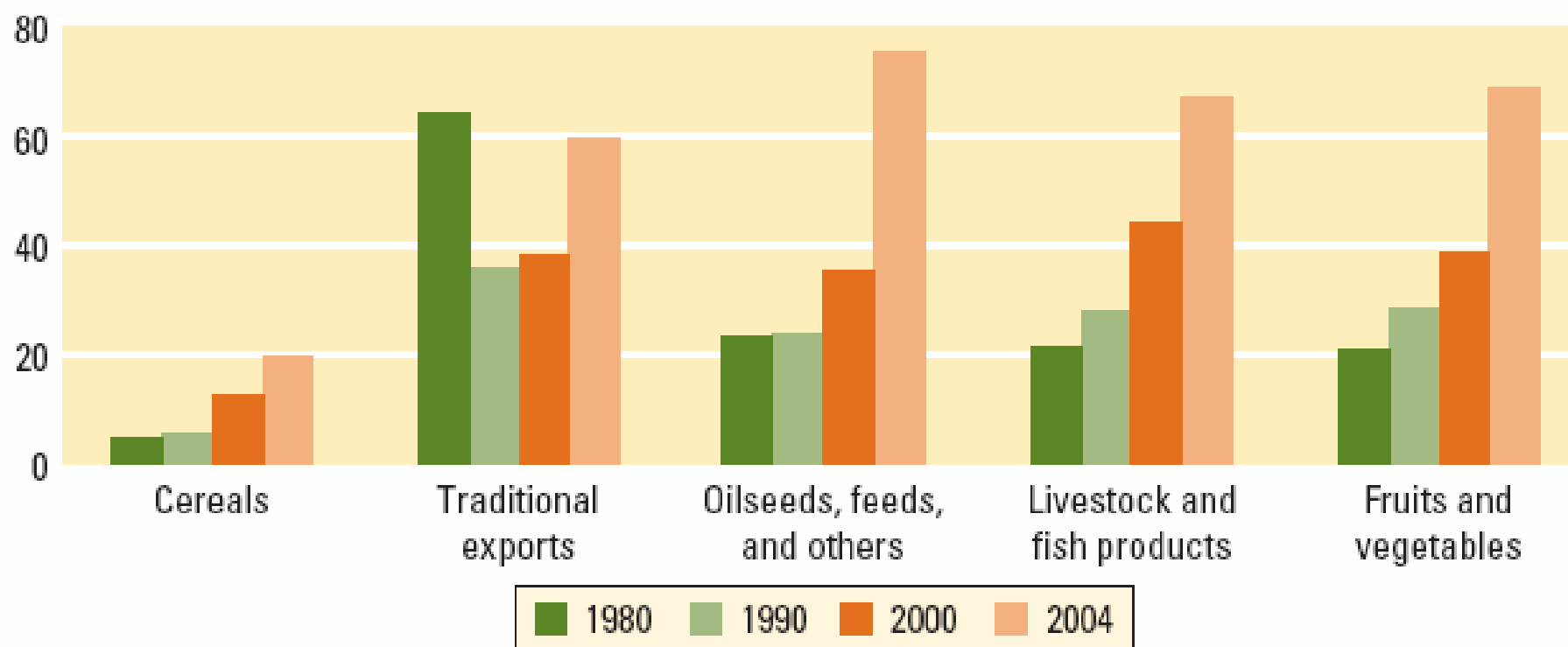
Percent of gross domestic product generated from the agricultural sector by country income level, 2003



Source: EarthTrends 2007, using data from the [World Bank 2006](#)

Figure 2.7 High value exports are expanding rapidly in developing countries

Billions of dollars (2000 prices)



Source: United Nations Commodity Trade Statistics Database (COMTRADE).

Notes: Traditional exports include cocoa, tea, coffee, rubber, tobacco, sugar, cotton, and spices.

Net exports of selected agricultural commodities by developing countries

US\$ billions



**UNEXPECTED WRINKLE –
WILL PRODUCE WINNERS
AND LOSERS**



INSIDE THIS WEEK: TECHNOLOGY QUARTERLY

The Economist

DECEMBER 8TH - 14TH 2007

www.economist.com

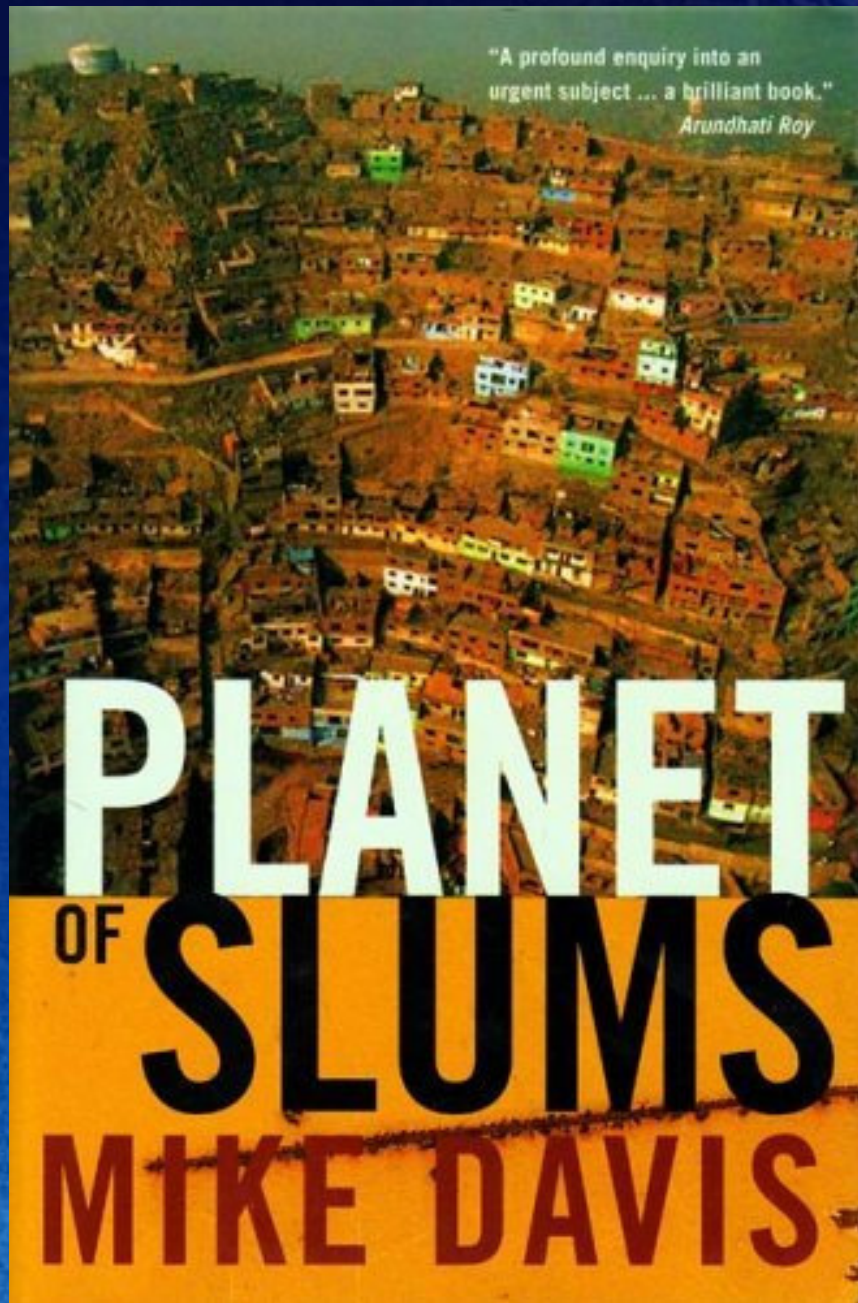
Why you should still be scared of Iran
The world's best and worst schools
Unzipping your genes
The beginning of the end for Chávez
Our books of the year



Biofuels

- Increased price of corn – up 60%
- Drives up other cereal grains
- 2008 food price index highest ever

Will help farming communities everywhere
Will hurt urban consumers most



Today, 1B people live in slums

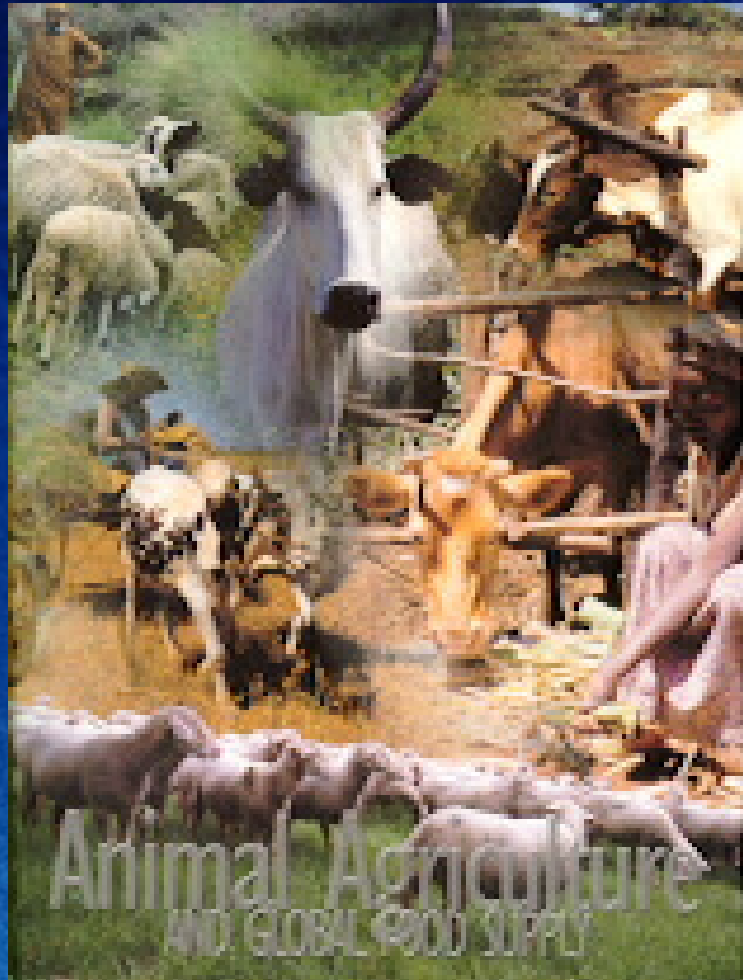
Slum populations growing at
25M per year

Rio/Sao Paulo conurbation –
25M

2015 – 332M slum dwellers in
Africa

Global sanitation crisis

Predictions – Global Livestock Production



Food, Agriculture, and the Environment Discussion Paper 28

Livestock to 2020 The Next Food Revolution

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P.O. Box 30709, Nairobi, Kenya

May 1999

WHO WILL LOSE?



Livestock Revolution LOSERS



- Traditional small scale producers
- Pollution, resource degradation



world development report

2008

Agriculture for Development



THE WORLD BANK

The Unflat World



- the too sick
- the too disempowered
- the too humiliated



PEPFAR

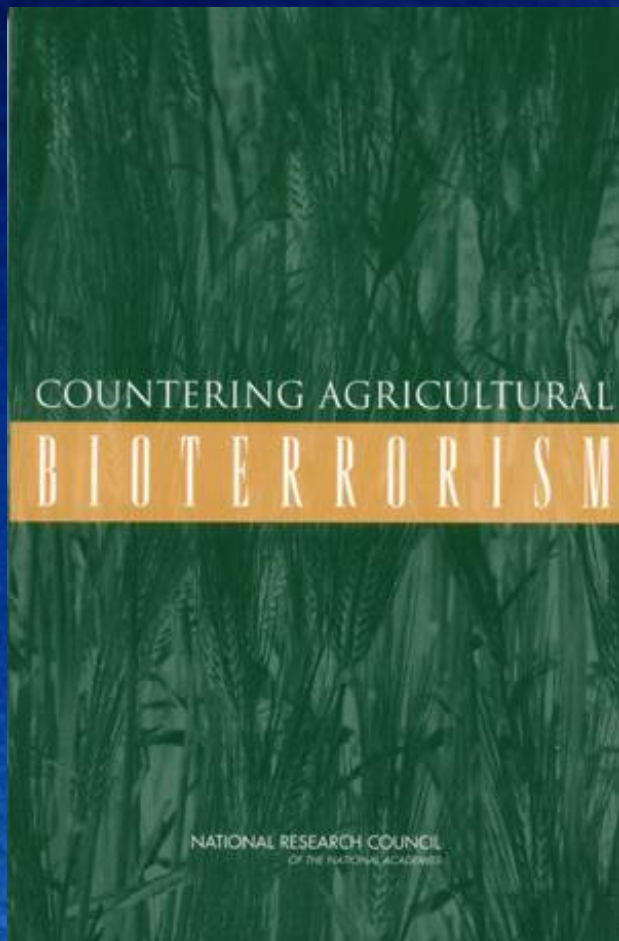
- President's Emergency Plan for AIDS Relief
- \$30B



- 700 Agricultural Disease and Veterinary Medical documents and journal articles were recovered from caves in Afghanistan.

ANTI PERSONNEL				
Disease	Microorg.	Time, Days. Effect	Treat %	Mode of Dissemination
PLAGUE	<i>Pasteurella pestis</i>	3-4	30-100	Aerosol
Anthrax	<i>B. anthracis</i>	1-4	95-100	Aerosol
Glanders	<i>Actinobacillus mallei</i>		10-20	Water
Cholera	<i>Vibrio comma</i>			Aerosol
Tularemia	<i>Francisella tularensis</i>	2-5	0-60	Tick/Insect
Psittacosis	<i>C. psittaci</i>		10-100	
ANTI ANIMALS				
Foot-Mouth Disease				
Rinderpest-Cattle plague				
Newcastle				
Hog cholera				
Fowl plague				
Aspergillosis				
ANTI PLANTS				
Rice Blast				
Maize Rust				
Black stem Rust of cereals				
Rice blight				
Coenoglyph				

Documents confiscated
from caves in Afghanistan



“Biological agents that could be used to harm crops or livestock are widely available and pose a major threat to U.S. agriculture.”

Harley Moon, Committee Chair



Complex interdependence





World's
GDP =
US\$44T

World
trade
accounts
for ~50%

Growth 3-
6% per
year

WHO WILL SUFFER?



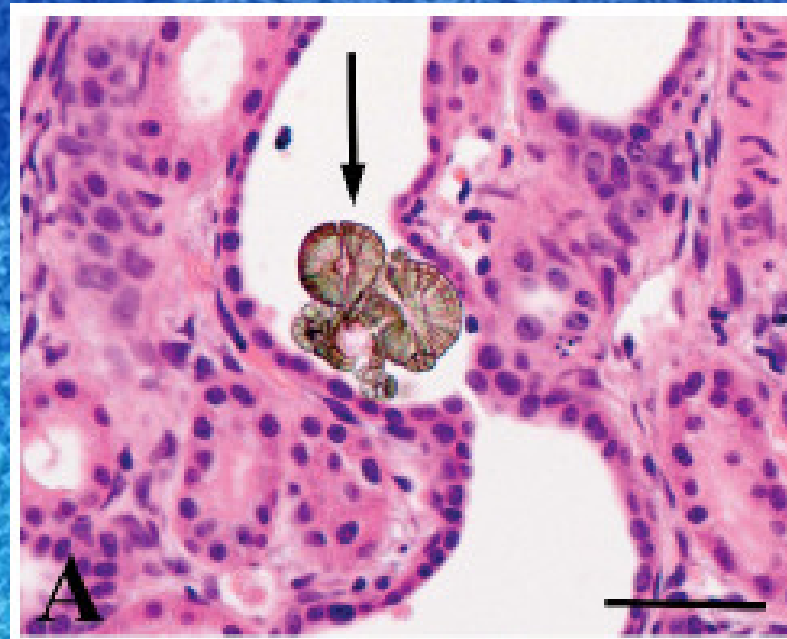
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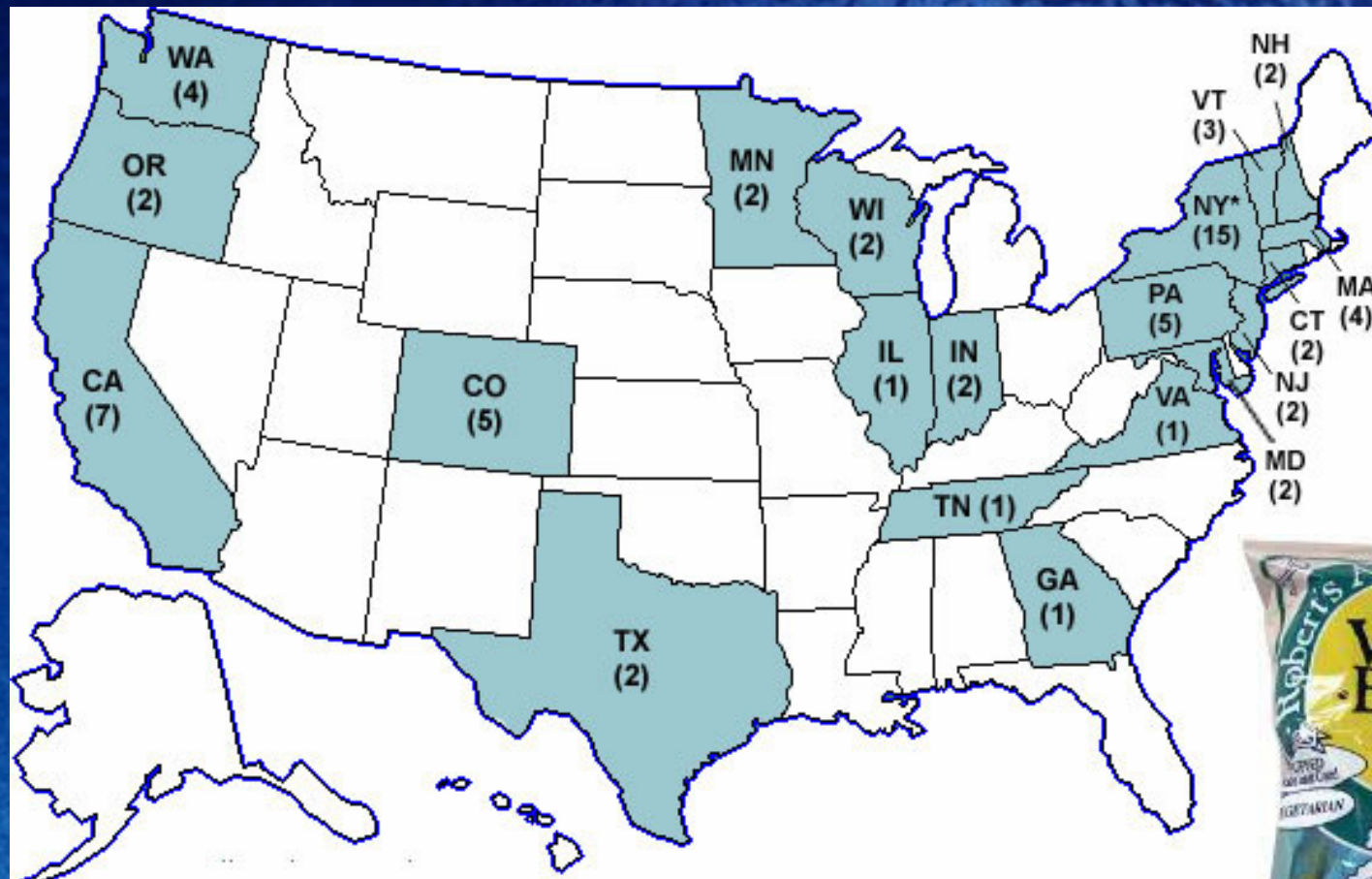
Processed food industry
75% of total world food
sales, \$3.2T





Pet food industry in US \$38B

Salmonella wandsworth

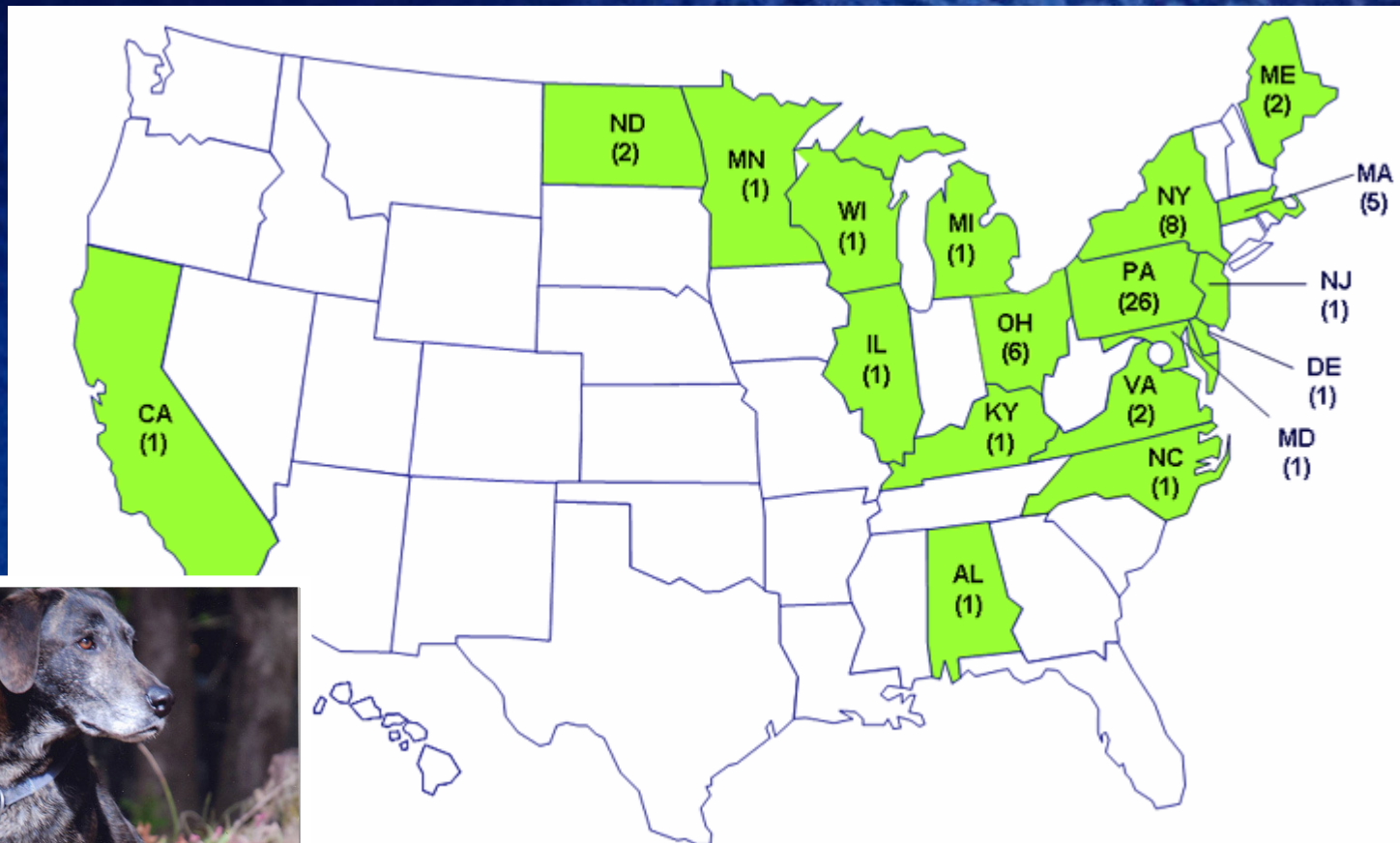


Rare strain of *Salmonella* – in seasoning mix
90% of cases in children <3 years old

* New York City case count -
New York State case count



Salmonella schwarzengrund



Lucky, an unregistered Plott, owned by Rick and Libby Hagby. Photo by Tom Styers. Used by permission.

Dry pet food
62 cases in humans
40% < 1 year old



U.S. Food and Drug Administration

OFFICE OF REGULATORY AFFAIRS

[FDA Home Page](#) | [Federal-State](#) | [Import Program](#) | [Compliance](#) | [Inspection](#) | [Science](#) | [ORA Search](#)

IA #66-74, 6/8/07, IMPORT ALERT #66-74, "DETENTION WITHOUT PHYSICAL
EXAMINATION OF DENTIFRICE PRODUCTS CONTAINING DIETHYLENE GLYCOL (DEG)"

The revision of this Import Alert dated June 8, 2007 includes a new product code for dentifrice products contained in kits. The revision also adds the appropriate Charge Codes that should be used for detention. Changes are denoted by asterisks (***) .

TYPE OF ALERT: Detention Without Physical Examination (DWPE)

NOTE: This import alert contains the Agency guidance to FDA field personnel regarding the manufacturer(s) and/or product(s) at issue. create or confer any rights for or on any pe



- Contaminated toothpaste in Dominican Republic, Panama, Australia
- 365 deaths in Panama from cough syrup

The New York Times
ON THE WEB

From China to Panama, a Trail of Poisoned Medicine



IN CHINA At least 18 people, most of them in Guangdong Province, died in a month last year after they ingested contaminated medicine.

http://www.nytimes.com/ref/world/20070506_POISON_GRAPHIC.html

WORLD U.S. N.Y. / REGION BUSINESS TECHNOLOGY SCIENCE HEALTH SPORTS OPINION ARTS STYLE TRAVEL JOBS REAL ESTATE AUTOS

AFRICA AMERICAS ASIA PACIFIC EUROPE MIDDLE EAST

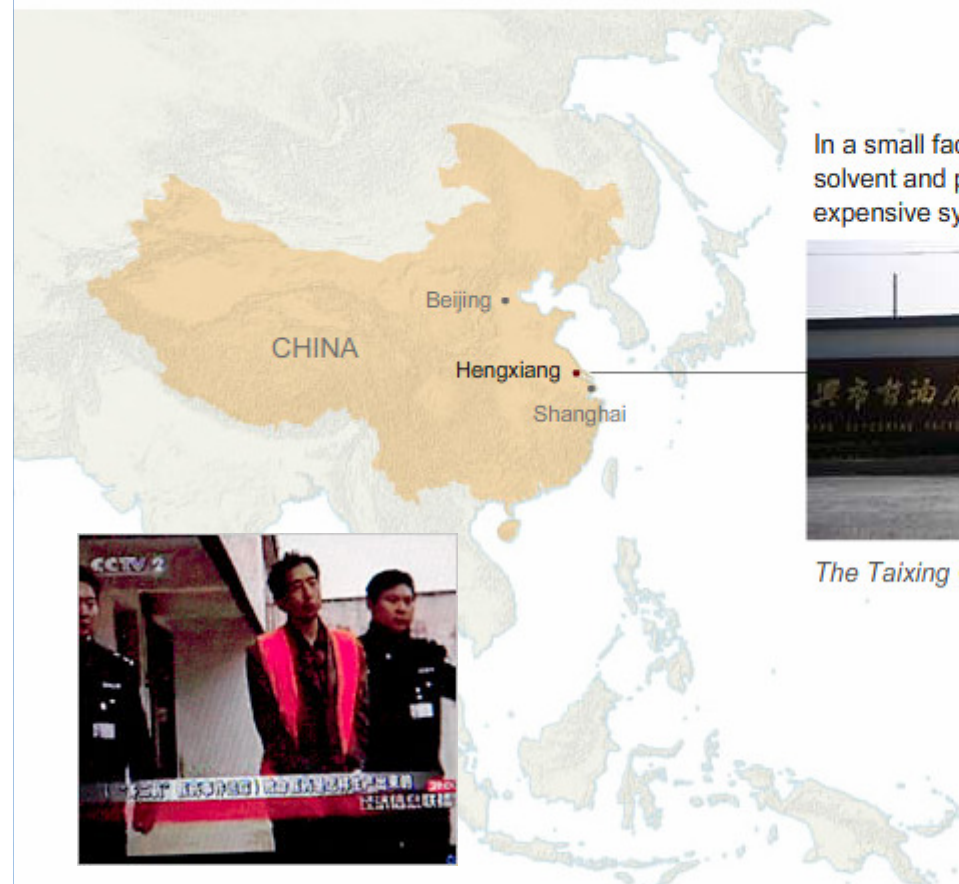
MAY 6, 2007

E-MAIL | FEEDBACK

A Poison's Path

How a toxic industrial solvent from China made its way into medication in Panama, killing at least 100 people.

1 2 3 4 5 6 NEXT ▶



In a small factory in China, a syrup containing diethylene glycol, a toxic industrial solvent and prime ingredient in some antifreeze, was sold as glycerin, a more expensive syrup used in food and drugs.



The Taixing Glycerine Factory's facility.

Du Bin for The New York Times



A dramatically different building is advertised on its website.



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MAY 6, 2007

[✉ E-MAIL](#) | [FEEDBACK](#)

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[1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [NEXT ▶](#)

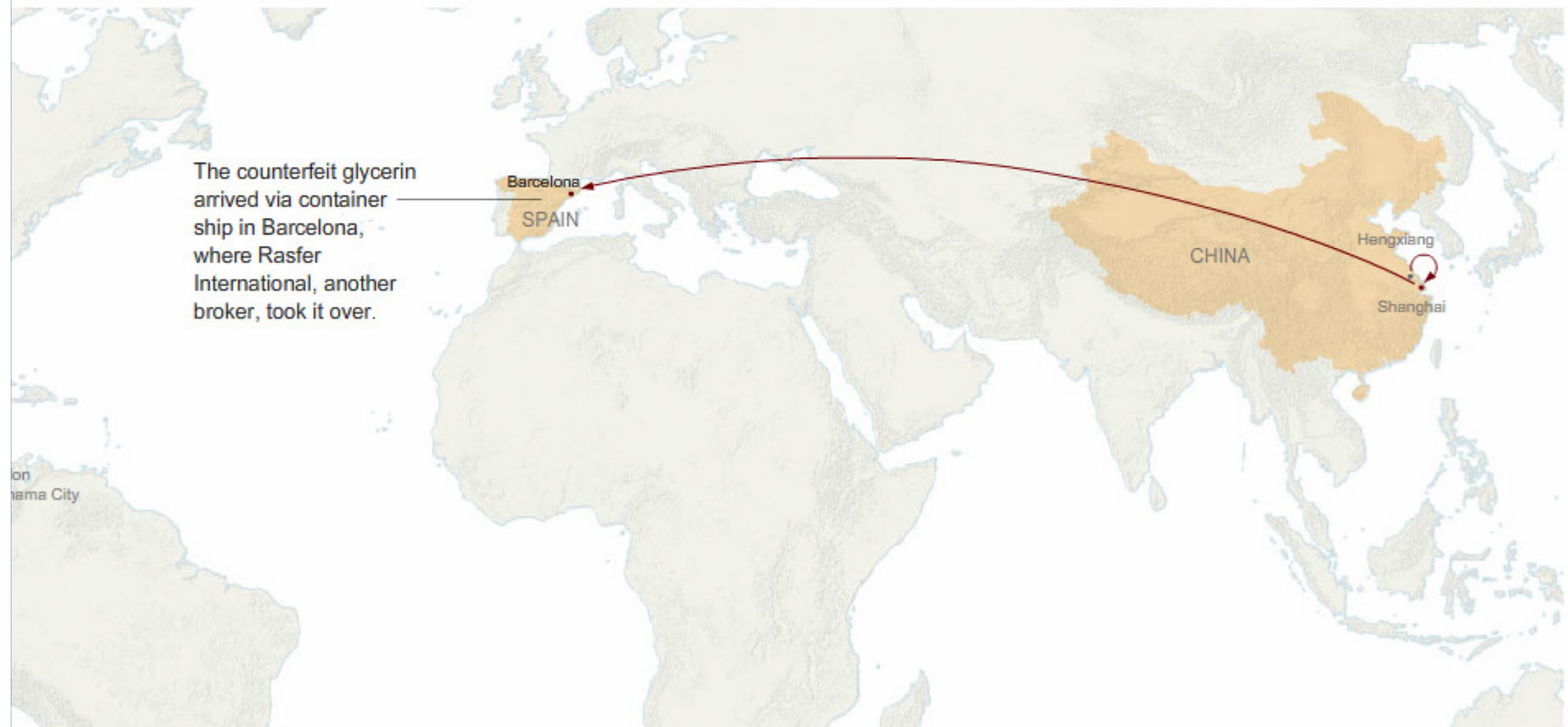
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☒ E-MAIL | [FEEDBACK](#)

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[1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [NEXT](#)

The Papertrail

The certificates falsely stated that the toxic supply was 99.5 percent pure glycerin. Each new broker put its own name on the certificate, obscuring the provenance of the syrup.

Barcelona
SPAIN

CNSC FORTUNE WAY COMPANY

4, RUXIN DONGQU, CHAOYANG DISTRICT, BEIJING, CHINA

CERTIFICATE OF ANALYSIS (ANALYTICAL REPORT)

PRODUCT: TD GLYCERINE
BATCH NO.: 03071601
MFG. DATE: JUL 16, 2003

QUANTITY: 9000 LITER
EXP. DATE: JUL 16, 2004

SPECIFICATIONS	CONTRAL RANGE	REAL
Appearance	Acromotous or pale yellow transparent adhesive liquid	Conforms
purity	>99.5%	99.5%

Beijing certification

RASPEZ INTERNACIONAL S.A.
PRODUCTOS QUÍMICOS - FARMACÉUTICOS

Av. del Jueces, 20
08025 BARCELONA (Spain)

Tel: 93 254 10 00
Fax: 93 254 10 00
E-MAIL: raspez@raspez.com
WEB: http://www.raspez.com

CERTIFICADO DE ANÁLISIS
CERTIFICATE OF ANALYSIS

PRODUCTO: TD GLYCERINE 99.5 %

BATCH: 03071601

MANUFACTURE DATE: 16/07/2003

EXPIRE DATE: 16/07/2004

Barcelona certification

泰兴市甘油厂 检验报告单

品名	TD 甘油	送检日期	03年7月
生产批号	03071601	数量	12吨
序号	指标名称	控制范围	结果
1	外观	无色透明或微黄色	合格
2	纯度K (比重法)	>99.5	99.5
3	比重 (20℃/20℃)	>1.2598	1.261
4	粘度 MPas	>10	115
5	折光指数 (ND20)	1.4400-1.4700	1.451
6	PH 值	6-8	6.2

Original certificate of analysis

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A Poison's Path

How a toxic industrial solvent from China made its way into medication in Panama, killing at least 100 people.

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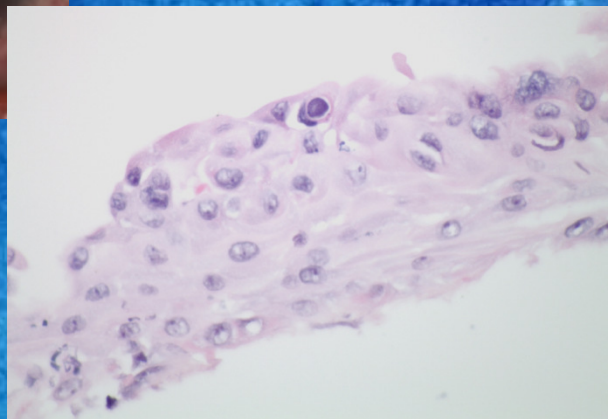
The syrup was trucked to Panama City, where government officials used it in 260,000 bottles of medicine. At least 100 people were killed by the medicine.



Hundreds of unopened bottles of toxic medicine still remain in boxes at a Panama hospital.



Acanthamoeba keratitis

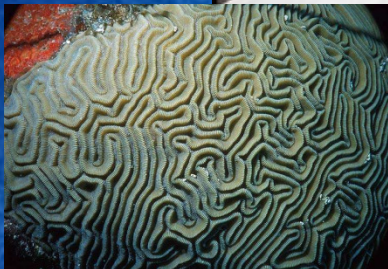
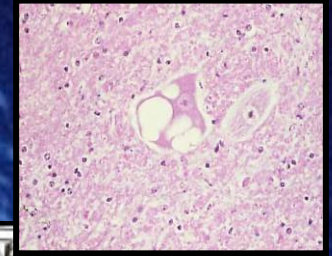


Contact lens solution
220 people, in 37 states
20 needed corneal transplants



Processed food industry
75% of total world food
sales, \$3.2T

BSE – US, 2003-2004, \$2B



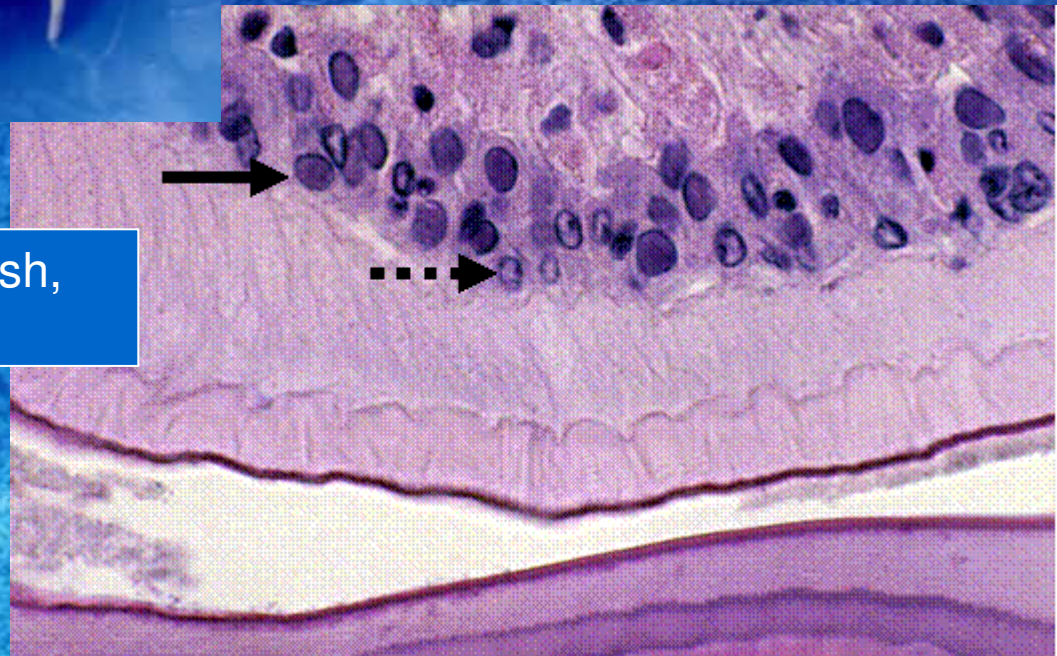
Empty cattle market in Washington, Feb. 2004

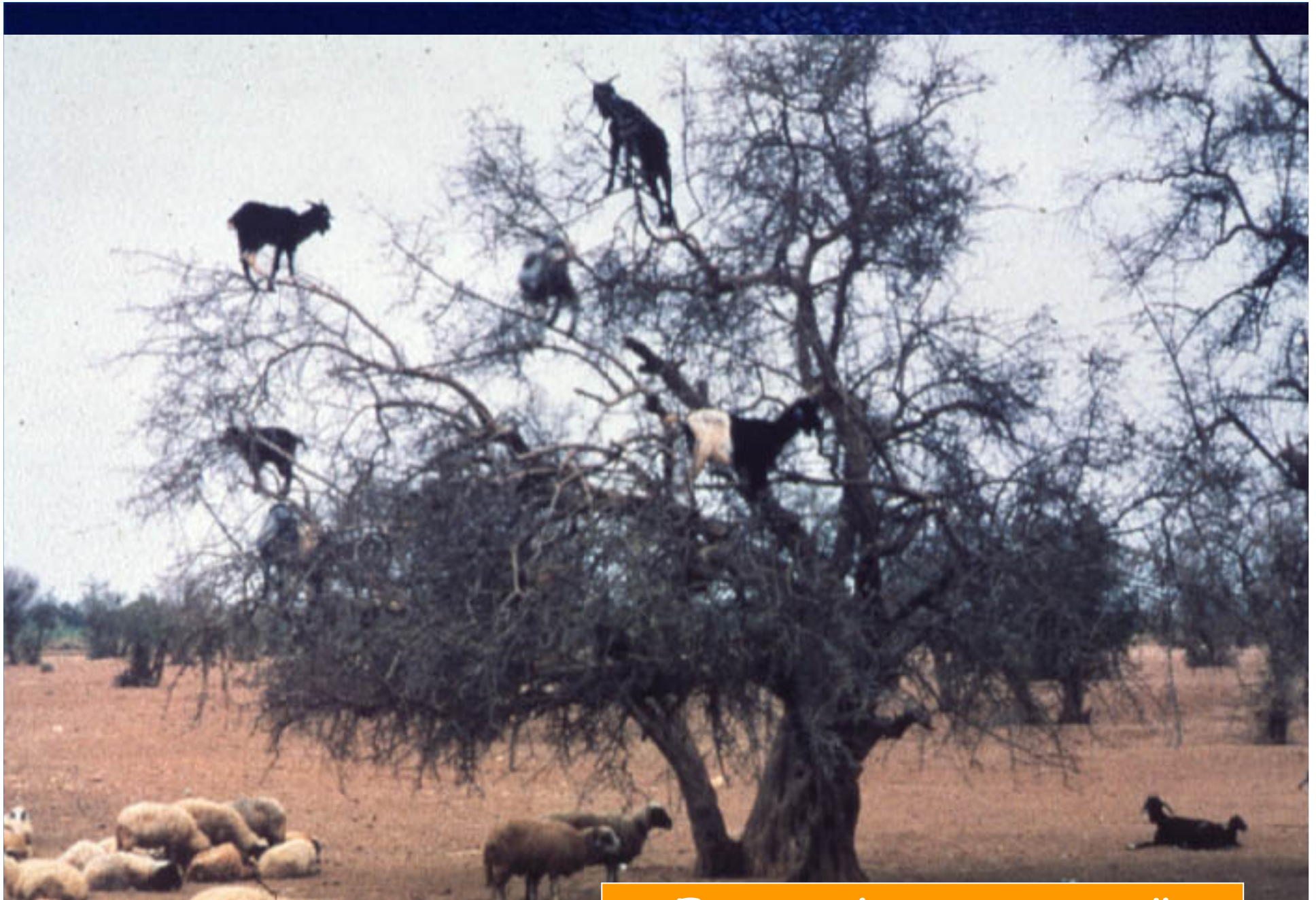
White spot disease



“value-added
reprocessing”

Disease of shrimp, crawfish,
lobsters, crabs





Expect the unexpected!

Viral hemorrhagic septicemia



Cornell University

CHRONICLEONLINE

June 14, 2006

Deadly virus in freshwater fish is found in Northeast for the first time by Cornell researchers

By Krishna Ramanujan

A deadly fish virus has been found for the first time in a variety of freshwater fish in the northeastern United States by Cornell University researchers.

According to experts at the Aquatic Animal Health Program at Cornell's College of Veterinary Medicine, the viral hemorrhagic septicemia virus (VHSV), which causes fatal anemia and hemorrhaging in many fish species, was discovered in upstate New York. It poses no threat to humans.

In May 2006, the researchers, in collaboration with the New York State Department of Environmental Conservation (DEC), isolated the virus in round gobies that died in a massive fish kill in the St. Lawrence River and in Irondequoit Bay, which is on the southern shore of Lake Ontario near Rochester, N.Y. VHSV was also found in a muskellunge from the St. Lawrence River in May.

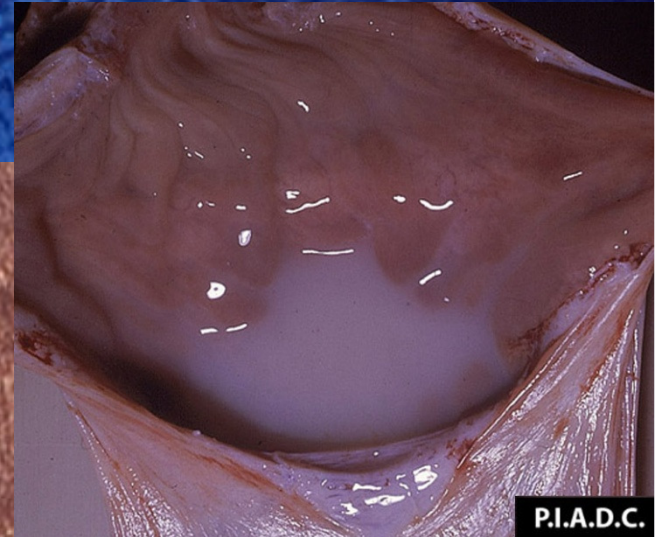


Jason Koski/University Photography

Dr. Paul Bowser, left, and postdoctoral associate Geoff Groocock collect organs (liver, spleen, gonads and kidney) of a round goby for viral analysis in Cornell's Veterinary Medical Center. The fish were infected with viral hemorrhagic septicemia virus. Copyright © Cornell University



Contagious equine metritis



Taylorella equigenitalis



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November 1, 2007

Dog with screwworms brought to Mississippi

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The Mississippi state veterinarian recently reported a case of screwworm infestation in a dog.

Private veterinarians in Mississippi found the fly larvae on a 16-year-old dog that was imported Sept. 13 from Trinidad. Dr. James A. Watson, Mississippi state veterinarian, said the U.S. Department of Agriculture's National Veterinary Diagnostic Laboratory confirmed the larvae to be *Cochliomyia hominivorax*—the New World screwworm.

The United States eradicated screwworms in the 1960s. Previously, the larvae had caused major economic losses to the U.S. livestock industry. One of the last reports of screwworm importation was in 2000, when a private veterinarian in Florida found *C. hominivorax* larvae on horses from Argentina.

The Mississippi Board of Animal Health and the USDA Animal and Plant Health Inspection Service, Veterinary Services, performed an extensive investigation in response to the importation of screwworms on the dog. The traceback and the clinical presentation of the animal indicate a low risk for screwworm establishment in Mississippi.

Veterinarians should report screwworm infestations to state or federal authorities immediately upon diagnosis or suspicion of the disease. Contact information for federal area veterinarians in charge is at www.aphis.usda.gov/animal_health/area_offices/. Information for state veterinarians is at www.aphis.usda.gov/vs/sregs/official.html.

A fact sheet about screwworm myiasis is available from the Iowa State University Center for Food Security and Public Health at www.cfsph.iastate.edu by clicking on Animal Disease Information, then on Factsheets. 🇺🇸

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